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ABSTRACT

New challenges facing the institutional research profession are covered in these 1986 conference proceedings of the North East Association for Institutional Research. Paper titles and authors include: "Institutional Research at Mercer County Community College: The Changing Role in the Eighties" (F. L. Edwards); "Course Placement and Academic Success" (J. C. Clark, A. Drum); "The STAR System: When a Mainframe Admissions Database Is Implemented on a Microcomputer" (J. F. Campbell, L. M. Spiro); "A Strategic Planning Model for Enrollment Management" (A. Lolli); "Planning: Strategic and Operational--How Do They Fit Together" (J. Napora); "The Role of Institutional Research in University Advancement Activity" (M. F. Middaugh); "Plant Upkeep and Financial Equilibrium: What Does It Take to Stay in Balance?" (J. A. Dunn, Jr., B. Sonenstein); "Information Management: Dealing with Imperfect Systems" (L. Webster-Saft, M. Eckstein); "The Impact of a New Academic Standards Policy on Different Community College Student Groups" (J. Grosset, G. Yerardi); "An Integrated Longitudinal Approach to the Study of Student Outcomes" (R. M. Karp); "A Study of the Fall 1980 Entering Cohort" (H. Staatse, F. Edwards); "Systematic Allocation of Faculty Positions: A Course Analysis Model" (K. D. Stewart, T. M. Edwards); "Decision Support for Contract Negotiation: The Context and Content of a Resource Allocation Model" (W. Poland, T. Wickenden); "Using Multiple Regression to Illuminate Faculty Salary Comparisons" (D. Trusheim); "Computer Modeling and Contract Negotiations: A Formula for Distributing Inequity Funds" (F. Wunschel, P. Roelfs); "Student Indebtedness: A Survey of State University Graduates" (J. A. Brown); "Life After Graduation: Trends in Post-College Activities" (B. Waters, R. Cheskis-Gold); "Post-Baccalaureate Plans of the Classes of 1984, 1985, and 1986" (D. G. Terkla, L. A. Kotowicz); "Attracting Low Income Students to a High Priced College: Does Loan Policy Make a Difference?" (L. J. Smith); "Regression Analysis of Factors Related to Acceptance to Medical School" (M. E. Costello, J. C. Clark, C. H. Yoder); "Marketing Strategic Planning: A Panel Discussion" (F. Milligan, G. J. Ryan); "Providing for the Needs of Handicapped

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13th Annual Conference

INSTITUTIONAL RESEARCH:
NEW CHALLENGES TO AN EVOLVING ROLE

October 26-28, 1986

PHILADELPHIA, PA

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FORWARD

The Thirteenth Annual Conference of the North East Association for Institutional Research was held on October 26-28, 1986 at the Philadelphia Hilton in Philadelphia, Pennsylvania. The Conference had the theme, "Institutional Research: New Challenges to an Evolving Role."

As in the previous conferences, there were a variety of topics and presentation formats. Many of the papers are included in the Proceedings, although not all of them were submitted for publication. Among the highlights of the Conference were the Keynote Address by Helen O'Bannon, Senior Vice-President of the University of Pennsylvania, and the Luncheon debate between Edward Delaney and Charles McClintock on the topic, "Should Institutional Researchers Serve as the Information Managers for their Institutions?"

The workshops and workshares were well attended and well received. The Monday evening candlelight tour and dinner in historic Philadelphia were the social highlights of the conference.

It was my pleasure to serve as Publications Chair. Special appreciation is due to Edward Delaney, the Program Chair, and to Susan Shaman, the Local Arrangements Chair. Their untiring work before and during the Conference contributed greatly to its success. Thanks are also due to Ron Doernbach, Workshop Chair, and Paige Ireland, Workshare Chair, and to all the presenters, panelists, and others that contributed to the success of the Conference.

I would also like to thank my secretary (and wife), Elaine, for her help in pulling these Proceedings together. Special thanks are also in order to Webster Trammell and his staff at Brookdale Community College for printing and distributing the Proceedings.

Bayard Baylis
Publications Chair

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INSTITUTIONAL RESEARCH AT MERCER COUNTY COMMUNITY COLLEGE
THE CHANGING ROLE IN THE EIGHTIES

Frances L. Edwards
Office of Institutional Research and Planning
Mercer County Community College

The primary role of institutional research at Mercer County Community College has evolved from merely developing research projects and data systems, and providing information to the college's administration, to making recommendations for administrative action as well. As in the past, the responsibilities of this office include the research activities of design, data collection, analysis and information dissemination. Recognizing institutional problems and making recommendations for administrative action are newly acquired responsibilities. With this changing role, the Office of Institutional Research has experienced changes in its organization, and in the nature of its products.

The new role for institutional research at Mercer is part of the administration's effort to confront the problems that accompany declining enrollment. Initially, this new role was signalled by a titular change from the Office of Institutional Research to the Office of Institutional Research and Planning. The designated research administrator was no longer a director or coordinator reporting to a dean, but an assistant dean who reports directly to the president. -

The president has defined the paradigm for institutional research, i.e., the college's declining enrollment. Within this paradigm, the function of the institutional researcher is to design and conduct studies that communicate to the college community the magnitude and implications of declining enrollment and to recommend actions that will enhance the college's well-being in these troubled times.

For this paper, the researcher has used records and reports of the Office of Institutional Research and conversations with the college's administrative staff as sources of data. The data depict the changes in staffing and activity that characterize the evolution of institutional research at Mercer during the eighties. This paper concludes with recommendations for institutional researchers at institutions faced with declining enrollments.

Cloud (1984) points out that many colleges and universities hesitated to adopt modern planning and management strategies during their periods of phenomenal growth. The era of declining enrollment and declining resources has made planning a necessity. At Mercer, enrollment peaked during the 1983 fiscal year and declined steadily since then. Table 1 presents data for six fall semesters.

Table 1

Credit Student Enrollment, Fall 1980-1985

	Year					
Type	1980	1981	1982	1983	1984	1985
Full-time heads	3038	3168	3246	3137	2831	2624
Part-time heads	6079	6424	7284	6834	6673	6585
Total heads	9117	9592	10530	9971	9504	9209
Full-time FTE	1519.00	1584.00	1623.00	1568.50	1415.50	1312.00
Part-time FTE	921.02	988.20	1155.57	1131.40	1110.77	1093.43
Total FTE	2440.02	2572.20	2778.57	2699.90	2526.27	2405.43

The staffing, activities and products of Mercer's Office of Institutional Research are indicative of these changing times. During the late seventies and early eighties, enrollment was increasing and funding was plentiful from the college and from outside grants. Several new data reporting systems were created, and numerous large scale special research projects were conducted. Information was collected from several categories of current and former students, high school students, employers, and Mercer employees using surveys and other methods. Data on space utilization, new program needs assessments etc. were compiled. The services of consultants were obtained. Travel to distant national conferences was possible. The staff consisted of a director, three other professionals, a secretary and a student worker.

The reduction in staffing, activities and products began at Mercer with the resignation of the director and the termination of research grants at the start of the 1982 fiscal year. At that time, the staff was reduced to a coordinator, one paraprofessional a part-time secretary and a student worker. Most of the reports created during more prosperous times were continued, but the proliferation of large scale special projects ceased. The office was called upon to justify the need for each activity and product. Pressures to reduce the quantity and length of reports mounted. The office was summoned, with increasing frequency, to respond to the crisis in declining enrollment.

During the 1986 fiscal year, the office experienced a reorganization. Its name was changed to the Office of Institutional Research and Planning. The staff was expanded to include an assistant dean reporting directly to the president, one full-time secretary, two professionals and one student worker. The office's role was defined explicitly by the college's president, as serving the informational and planning needs of the central administration. These needs were to supply data that communicate the condition of the college and to recommend solutions to the problems facing the college. The office receives extensive assignments related to planning. Much less emphasis is placed on reseach today than was in the past.

The continuous decline in enrollment has made it necessary to scrutinize and possibly reduce programs and services at the college. Such reductions call for difficult decision-making, as it is sometimes necessary to streamline staffing by attrition or other means. Cloud (1984) and Terrass and Pomrenke (1981) recommend that institutions implement broad-based planning, including input from not only administrators, but from faculty as well. These authors argue that an all inclusive planning process that guides institutional research and planning maximizes communication and cooperation. Broad-based planning, they contend, facilitates the role of institutional research as an agent of change. Such planning fosters the flexibility an institution needs to adjust to difficult times. By involving in the planning process all those who will be affected, recommendations for change will be better received by the college community, hence, more easily implemented.

Dressel (1981), who sets forth a conceptual framework and planning model appropriate for higher education, credits the community college with symbolizing planning better than any prior development. Dressel (1981) states that community colleges, in location, purpose and program, have adhered to the ideas that lead to their establishment. Perhaps these institutions can look to their historical linkage to eduational planning for guidance and motivation to weather the current storm of declining enrollment.

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COURSE PLACEMENT AND ACADEMIC SUCCESS

Jocelyn C. Clark, Director of Institutional Research
Alice Drum, Dean of Freshmen

Franklin and Marshall College

PURPOSE

There is a great deal of discussion today about the validity of the use of SAT scores in the college admissions process. In this project we looked beyond the admissions process to the use of SAT scores in course selection and registration procedures for students who had already been admitted to the institution. We were interested in whether or not students with SAT scores in the lower ranges among their cohort would benefit from different patterns of course placement. Initially, we wanted to look at Pre-Healing Arts students and their placement in courses the first semester of the freshman year.

Incoming freshmen at Franklin and Marshall College who are interested in Pre-Healing Arts typically select the following courses the first semester of their freshman year: calculus, chemistry, physics, and one elective. We wished to determine if students whose SAT scores were lower than the median SAT score for Franklin and Marshall students generally had higher GPA's at the end of the first semester when they took fewer of the mathematics/science (hereafter referred to as M/S) courses mentioned above, and consequently took more electives. (We selected 1050 as the total SAT score deliminator, for reasons noted later.)

Some background information about Franklin and Marshall may be useful in explaining why we chose to study SAT scores and course placement for this particular group of students. Franklin and Marshall is a small, private, highly selective undergraduate institution, whose student body numbers 1850 students. The College has several strong pre-professional programs, including Pre-Healing Arts and Pre-Law. Approximately 23% of an incoming class expresses an interest in the Pre-Healing Arts Program; of that number approximately 20% eventually apply to medical and dental schools, with a 90% acceptance rate.

Each year some freshmen experience great academic difficulty in the Pre-Healing Arts program, which is highly competitive. In some cases, the students do not have the necessary background from high school courses to deal with the subject matter; in other cases, they are trying to carry a heavy load in fields for which they do not have a strong academic aptitude. Many of these students will leave the program; others will overcome their difficulties and remain in the program. Both groups have a common problem: they must deal with an initially low academic average that places them at a disadvantage as they make their way through the institution. We hoped to discover if there were any easily identifiable pre-admissions indicators that could be used, first, to identify these students; and then, to aid us in their pre-registration placement in courses. We hoped that by careful course selection we could place students in courses for which they had the academic aptitude and the necessary pre-college background. In deciding what indicator to use, we elected to use SAT scores since they are easily identifiable and a more standard indicator than high school grades, which may vary widely from institution to institution. Because the median combined SAT score for Franklin and Marshall students is approximately 1170 (1174 for the Class of 1989, with a Verbal median of 567 and a Mathematics median of 607), we selected the figure 1050, as significantly below the median, and therefore a reasonable figure to use for our initial studies. Later, we looked at the Verbal SAT and Math SAT individually, rather than the combined SAT.

METHOD

As late as 1985, Franklin and Marshall College (like most other institutions, striving to keep pace with rapid technological change but lagging one step behind) had two mainframe computers running simultaneously and duplicating administrative effort. This was due to historical accident (sometimes referred to as "progress".)

The older c.p.u. (Burroughs) housed the Admissions applicant file, since that office was one of the first to go "on line". However, the administrative software package (POISE), which included the Registration applications, was purchased to run on the newer c.p.u. (Vax). The two systems were now efficiently devoted, one to administrative, one to academic applications, with one glaring exception: student registration files were on the Vax, while the applicant file was still being maintained on the Burroughs.

To be specific, pre-enrollment data about a student, such as SAT scores, High School rank, and a Pre-med indicator, were located on one computer (and keyed, I might add, with a sequential record identifier) while course enrollment and grade data (keyed by the student's social security number-SSN) were located on another. Needless to say, longitudinal analyses to track student progression, or outcomes, were near impossible. Therefore, until 1985, when the applicant file was at last keyed with social security numbers, no attempt was made to merge the two data sets in order to begin the type of analysis described hereafter. This study is an analysis of the Class of '89; freshmen in that fateful Fall of 1985, when all were unified under the social security system.

From the Student Registration file on the Vax, a pointer file was created of freshmen course registrations (for those who had enrolled in at least one of the following courses: English 4, Chem 1, Physics 11, Math [illegible], Math 14). It was decided that all registrants should be studied rather than just those who indicated a Pre-healing Arts preference. Their social security numbers were extracted, merged with selected data elements from the applicant file on the Burroughs, and a sort routine performed to match applicants with matriculants. The newly-gleaned applicant file and course registration file were downloaded to an IBM PC (I-Omega Bernoulli Box-enhanced) using Kermit, and imported separately into a Lotus 1-2-3 spreadsheet. (It should be noted here that 1-2-3 and other PC software are heavily utilized at F&M since, due to our relatively small size, most files can be handled easily within the confines of a spreadsheet.)

Since we were primarily interested in the effect that the number of M/S courses attempted by freshmen had on their first semester GPA, the 1-2-3 Table command was utilized to determine how many of these courses each student had registered for. In this way, we were able to "collapse" course registrations for each student into a single record: the total number of M/S courses attempted. At this point, the two files were sorted by SSN and combined, with the final record layout appearing thusly:

SSN / Pre-Med Ind / HS Rank / HS Dec / TSWE / Eng 41 /
Deans List Ind / # M/S / GPA / MSAT / VSAT / TSAT /
HS Rank

We then sorted the records into three groups: those who had registered for 3, 2 and 1 M/S course. The range, median and mean were calculated for the following: a) GPAs of students who took English - (freshman composition) who had TSWE(Test of Standard Written English) scores less than or equal to 50, b) GPAs of students who scored a total greater than or equal to 1050 on SATs and enrolled in 3, 2, or 1 M/S course, c) GPAs of students who scored a total less than 1050 on SATs and enrolled in 3, 2 or 1 M/S course, d) Verbal score as % of total SAT score of students who scored a total greater than or equal to 1050 on SATs, and e) Verbal as % of total SAT score of students who scored a total less than 1050 on SATs.(See Appendix I)

Initially we subdivided the file at a combined SAT score of 1050 in order to set an arbitrary division between high and low scores. But upon further consideration, it was decided that the Verbal and Math SAT scores should be independently analyzed. Therefore, if a large divergence existed between a student's Math and Science scores, their combination would not lead us to the mistaken impression that both scores were similar. (In fact, "glitches" did appear in the data; several oriental students scored very high on the Math SAT but very low on the Verbal.)

Using the first semester GPA as the measure of success (dependent variable), a multiple regression analysis was performed with Statfast, a statistical package for the PC. The Math SAT score, Verbal SAT score and highest SAT score were selected as the independent variables, and regressions performed on each subset of students enrolled in 1, 2 or 3 M/S courses.

RESULTS

The multiple regression analysis yielded the following r-values for students enrolled in 1, 2, or 3 courses: .3964, .4718 and .5965, respectively. The correlation coefficient of the dependent variable (first semester GPA) with the Math SAT scores was greatest (b=.00813) when the students took 3 M/S courses. However, negative coefficients for the Verbal SAT and highest SAT appeared, suggesting an interdependence or multicolinearity between the variables. In order to remove this effect, single regressions were performed. The Math SAT score as independent variable still produced the highest coefficient (r=.5963).

In order to graphically portray these correlations, we created ranges (at fifty point intervals) for the Math, Verbal and highest SAT scores and plotted the average GPA at each interval along the range (See Appendix II). These graphs further emphasized the strength of the MSAT correlation with GPA.

CONCLUSIONS

Since our initial studies showed that SAT scores can be an indicator of how well students will perform in courses when there is variation in the kinds of courses selected, we decided this year to use SAT scores as one factor in pre-registration course placement. At Franklin and Marshall, incoming freshmen select courses during the summer; their course selections are reviewed by the registrar, the Dean of Freshmen or the Pre-Healing Arts Adviser, who may make schedule changes, before the initial registration is completed. When students arrive on campus, they may, in consultation with their academic adviser, change their course schedules. In the pre-registration process for the Fall 1986 semester, we modified course schedules for approximately 20 students whose MSAT's were 500 or lower. These students had elected three M/S courses, but we placed them instead in two M/S courses and two electives. At this point in the school year, we have no information on the implications of this method of course placement, but we should track these students to see what their performance has been at the end of the first semester.

There are other factors that we should look at in future studies at Franklin and Marshall: What is the GPA for the combined M/S courses as opposed to the overall GPA? Which M/S course, if any, was the most difficult, as indicated by final grades? Did the choice of particular electives make a difference in combined GPA? Did a particular section of an M/S course make a difference in GPA, and if the answer is yes, how should we use that information? There is a great deal of research that we can do at our own institution.

We believe that there is also a great deal of research generally that is needed on the use of pre-college scores as tools for academic advising. If we can use SAT scores to help us advise Pre-Healing Arts students, we may also be able to use the scores in the advising process for other students. For example, we should try to discover whether students with a lower Verbal SAT benefit from taking writing courses early in their college careers. There may also be retention implications for these students if they receive the proper writing instruction. Finally, there may be other indicators that are significant in course placement, such as high school average and decile. There should be further research on these matters and on the general subject of course placement and pre-registration indicators of academic success. The results of these studies could have broad implications for various departments within the institution, including the registrar and the office of academic advising; it could have even broader implications for the institution as a whole as it looks at retention issues and the manner in which it carries out its educational mission.

Appendix I

Class of '89

GPAs

I. TSWE ≤ 50

took English 4
- mean 2.12
- median 2.25 n=71
- range 0- 3.93

II. Total SAT ≥ 1050 (1050-1420)

a. took 3 sci/math
- mean 2.74
- median 2.93 n=65
- range 0-4.00

b. took 2 sci/math
- mean 2.62
- median 2.75 n=120
- range 0.33-3.85

c. took 1 sci/math
- mean 2.48
- median 2.47 n=118
- range 0.33-3.85

III. Total SAT < 1050 (800-1040)

a. took 3 sci/math
- mean 1.52
- median 0.75 n=6
- range 0-3.25

b. took 2 sci/math
- mean 2.10
- median 1.99 n=30
- range 0.57-4.00

c. took 1 sci/math
- mean 1.96
- median 1.90 n=29
- range 0.32-3.03

V/TSAT

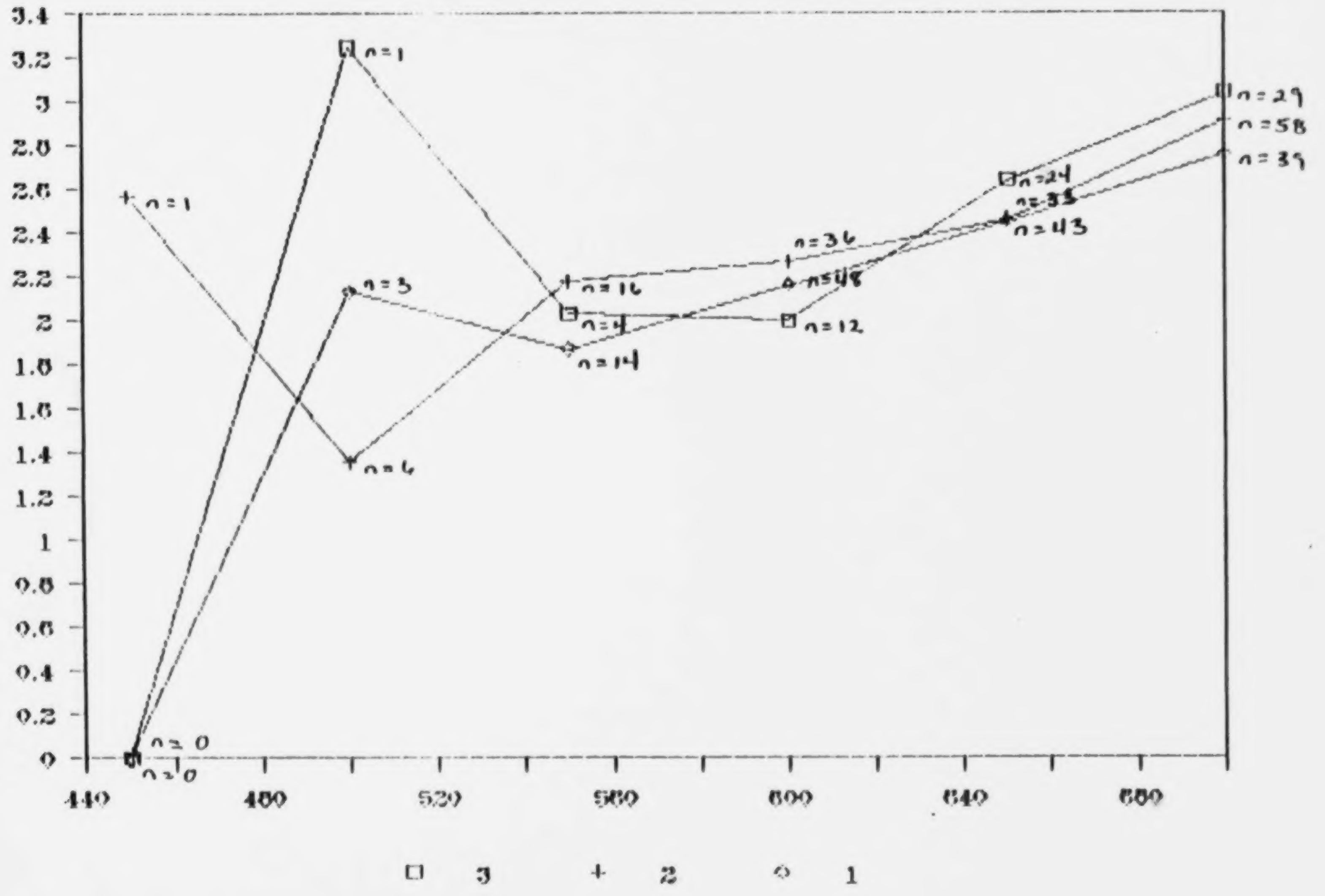
SAT $\geq$ 1050

- a. 3 courses
  - mean 47.3%
  - range 34.5-54.2%
- b. 2 courses
  - mean 47%
  - range 38.1-54.7%
- c. 1 course
  - mean 47.2%
  - range 39.7-57.4%
- d. total
  - mean V/TSAT 47.1%
  - range 34.5-57.4%

SAT $<$ 1050

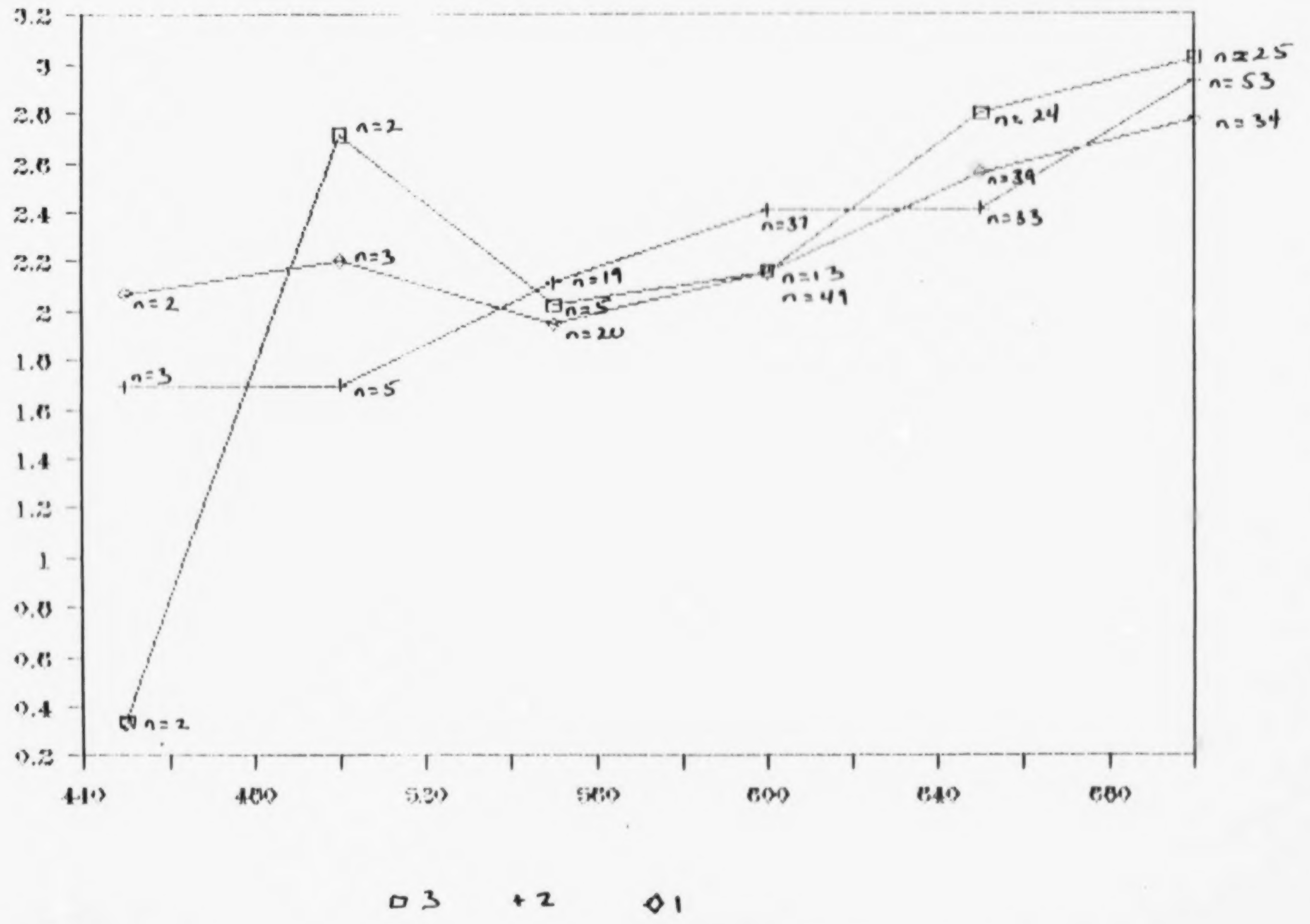
- a. 3 courses
  - mean 51.4%
  - range 44.1-58.7%
- b. 2 courses
  - mean 47.1%
  - range 35.6-53.8%
- c. 1 course
  - mean 47.3%
  - range 41.6-57.4%
- d. total
  - mean 47.6%
  - range 35.6-58.7%

APPENDIX II



HSAT

MSAT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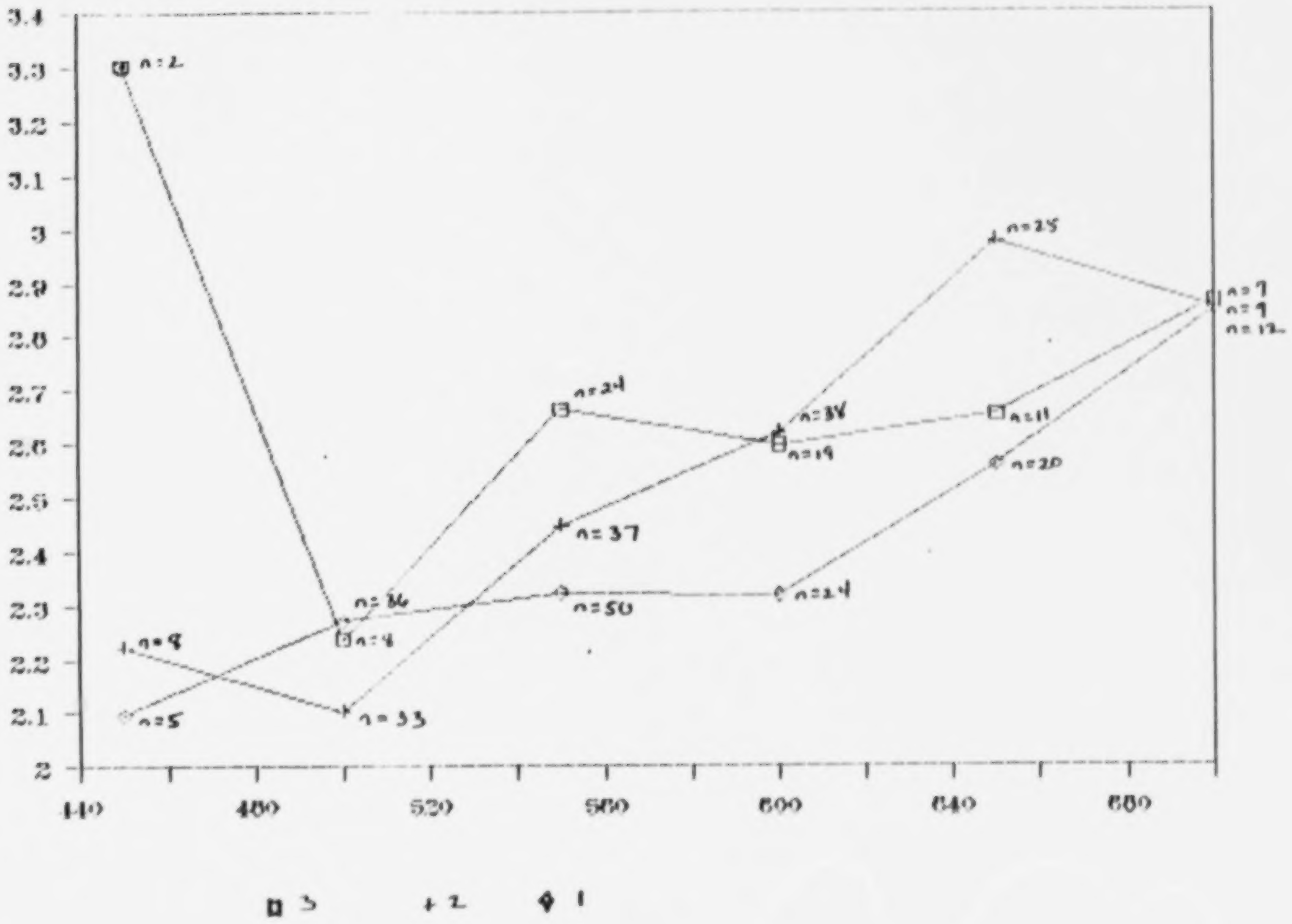
VSAT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1

THE STAR SYSTEM: WHEN A MAINFRAME ADMISSIONS DATABASE IS IMPLEMENTED ON A MICROCOMPUTER

Jill F. Campbell
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Introduction/Background

The 1985 NEAIR Conference in Hartford provided a great deal of discussion about analysis of Admissions data to aid in recruitment activities. During one session, a comment from the audience caught our attention. The individual briefly related an instance when the Admissions Office kept track of acceptances by high school within their state. They used this to pinpoint where yield rates dropped below expected levels based on the previous year. The discussion ended with the remark that this would be nice but the development would be a monumental task. Undaunted by the work involved, we brought this idea back to our own campus. We approached both the Vice President for College Relations and Development and the Director of Admissions with the idea of an Admissions tracking system. Both endorsed it. Further discussion led to an agreement that the Office of Analytic Studies would develop a prototype Admissions system for use on a microcomputer. Why on a micro? Since our data processing department was in the midst of converting to a database with an overlapping mainframe upgrade, they essentially had no spare time for developing any new systems for a minimum of two to three years. The existing

Admissions Quotas Report was inadequate for developing Admissions targeting strategies. The dwindling applicant pool made it paramount to develop and to computerize a Strategic Tracking of Admissions Records System, or the STAR System.

Identification of Major Student Segments for Analysis

In previous years, Admissions data had been reported on a weekly basis for Freshmen and Transfer groups. Total numbers of applications, offers and payments along with percentages were provided for the current and previous Admissions cycles at comparative points in time. Based on these comparisons, end-of-recruitment year projections were calculated for both Freshmen and Transfers. This report's weakness was that goals were set for different types of students, e.g., traditional, adult, Educational Opportunity, etc. It wasn't until after-the-fact that executive managers knew how well individual targets had been met. We needed to tune the information. In consultation with the Vice President for College Relations and Development, and the Admissions Director, the Office of Analytic Studies designed the STAR System. This microcomputer database system uses institutional Admissions data to provide detailed analyses of fourteen specific student segments on a weekly basis. These groups along with some explanatory comments follow:

. Traditional Age Regular Freshman in 7 Admissions Regions

Admissions reorganized counselors' responsibilities into specific regions and had set targets in each of them. Therefore, we organized the Freshmen component into those same regions.

- Traditional Age Regular Transfers from each Public Two-Year College

  This group evolved in much the same way as the Traditional Freshman. The only difference is that transfers are reported by school instead of by region because the number of Community Colleges in New York State is more manageable than the number of high schools would have been for Freshman.

- Adult Freshman and Adult Transfers in Rochester, Monroe County and Contiguous Counties

  As the traditional applicant pool has decreased, there has been an expanded emphasis on adults in the Rochester area. Brockport utilizes a combined Admissions and Adult and Continuing Education recruitment effort.

- The Educational Opportunity Program for Freshmen and for Transfers; the Transition Program; and the High School (3-1-3 Program) Students

  These are special programs, each with a specific target. EOP extends, to the academically and financially disadvantaged, an opportunity to obtain a college degree. The Transition group is viewed as having the potential to be successful although they are not regularly admissible. The High School students are high ability students who undertake three years of high school courses, one year of combined high school and college course work, and then, typically, three years of college courses.

- Out-of-State Freshmen and Out-of-State Transfers for Connecticut, Massachusetts, New Jersey, Ohio, Pennsylvania and Vermont

  There has been an increased interest in out-of-state recruiting. The states listed are those from which students have typically applied in previous years.

- Foreign Students and Visiting Students

  Each of these is a special program.

- Readmit Students

  These are students who have been academically dismissed, have taken courses successfully elsewhere, and have reapplied for readmission to Brockport.

These 14 segments take into account the College's emphasis on recruiting a diverse student population whose interests and needs reflect the complexity of contemporary society.

Defining the Reports

Once the student segments were set, we needed to establish what the actual reports should display. For each segment we designed reports to show the number of applications, the number of offers and the number of paid acceptances. The payment report also displayed the calculated yield rates of offers to payments. Mean quality indicators were keyed into the Lotus databases but were not included in the initial series of reports. For Freshmen these included SAT Verbal and Math scores, the ACT score, Rank in Class, and High School average. For Transfers, the mean GPA was entered. These detailed analyses showed the number of applications, offers and paid students for the current year, compared with previous years at a comparable point in time.

Finally, the reports included two different end-of-year percents calculated for the current and previous years. For both offered and paid, the first End of Year column indicated what percentage the end of the current year would be compared with the end of the previous year. For instance: current year regular freshman offers could be 80 percent of the last year's final number of offers, while last year at the same time, it was only 75 percent of the final figure. This example showed that the total number of offers would exceed the previous year if the offers continued at the current rate.

The last End of Year columns show what percentage the current week's payments are of the final totals for both the current and previous year. For instance: the regular freshman payments could be 50 percent of last year's final payments, while last year at the same time it was only 45 percent. This shows that the cumulative percentage paid in the current year is higher than the previous year at a similar point in time.

Designing the System

Once all the groups were identified our office began the computerization process. The first problem was that the Admissions data was located on the Burroughs mainframe. With a user language, REPORT Generator, we developed 30 programs to create printouts with the necessary data for 1986. For the initial set-up, we also needed to develop 30 programs to recreate the 1985 weekly experience throughout the entire cycle. From these printouts we calculated Applied, Offered, and Accepted totals and mean quality measures, i.e., SAT VERBAL, SAT MATH, and GPAs, for each group. All of this was keyed into ten LOTUS 1-2-3 Databases. From these databases, 45 weekly tables were generated by group and showed 1985 and 1986 applications, offers and paid totals with end-of-year percents calculated for both 1985 and 1986. The main reports included that same information by Region, County, Community College, High School or State. At this stage of development, quality indicators are not printed out on the formal reports.

There were several reasons for using the IBM-PC and the Lotus Database. First of all, it was what we had available. Secondly, we had to produce the material quickly. We finished the initial conceptual design phase in January and were required to produce reports for April 1. There was no time to obtain and learn to operate new hardware and software, develop this extensive reporting system and still fulfill our other reporting responsibilities. Third, Admissions was obtaining similar hardware and software. The reports and databases were to be turned over to Admissions once they were tested. Then, the thrust for our office would be further development. We were to design more sophisticated databases with Paradox software and a Bernoulli Hard Disk system that would allow easy transfer of data to Admissions.

Results and Future Developments

We successfully developed the mainframe programs and Lotus databases to generate weekly reports that were received enthusiastically by Executive Management and Admissions.

The Admissions Office reviews the weekly tables. If a particular community college has substantially fewer applications than the previous year at the same point in time, they can either keep a watch on it or investigate immediately. Perhaps counselor visits were scheduled for later on or perhaps there were fewer visits scheduled. Whatever the case, Admissions can determine if their monthly schedule needs adjustment. This also allows them to develop regional and community college targeting. They have the data to substantiate putting more resources into high yield areas even if applications are lower than areas that may have high applications but lower yield rates.

At the Executive level, an Enrollment Management group was created and is headed by the President. Bimonthly meetings have resulted in monitoring the detailed market segments and making suggestions for additional activities to improve applications and yield rates.

In terms of our office time commitment, it takes about ten hours a week to calculate the quality measures, generate the data from the mainframe, key the data into the Lotus databases, generate the reports, xerox, and finally, distribute the reports. Additional time and expertise would be required to modify the existing database to incorporate new cycles.

These factors triggered a reconsideration of priorities. The Admissions Office was increasing their travel and recruitment activities. This, along with the realization of the amount of time and expertise required to continue the weekly reports, led to the conclusion that Admissions should not assume these responsibilities. The Office of Analytic Studies was requested to continue this project on a permanent basis. Simultaneously, we were asked to identify what additional resources we would need in order to carry on the assignment. We received additional computer support and increased temporary service salary dollars for our office budget. The STAR System now resides in our office. As a result, the new database and hard disk system developments were postponed for the future.

Pros and Cons

Obviously, our office did benefit from this experience.

On a permanent basis, we received more resources in the forms of a Zenith PC with a 20 meg hard drive and additional temporary service salary dollars. Our efforts received more visibility and recognition since Executive Management received the STAR reports weekly. This also resulted in improving our image, and expanding our support from other areas as well as improving communication links. Lastly, one of the more important benefits was that our efforts became tied to local campus needs on a permanent basis.

On the other hand, there were also some drawbacks. Since the additional resources didn't match the total year-round effort, completing the STAR reports took up more of our discretionary time. That meant that we had less time for other campus projects, and, less time to devote to future STAR development. One additional point was that we became a little more cautious about developing new applications. If an office approached us about developing a prototype, we would hesitate to undertake it at the present time.

Conclusion

In essence, the STAR System Project was a short term hassle with long term benefits. It took literally hundreds of hours to define, computerize and complete the reports. But, the results were well worth it, personally, professionally, and institutionally.

A STRATEGIC PLANNING MODEL FOR ENROLLMENT MANAGEMENT

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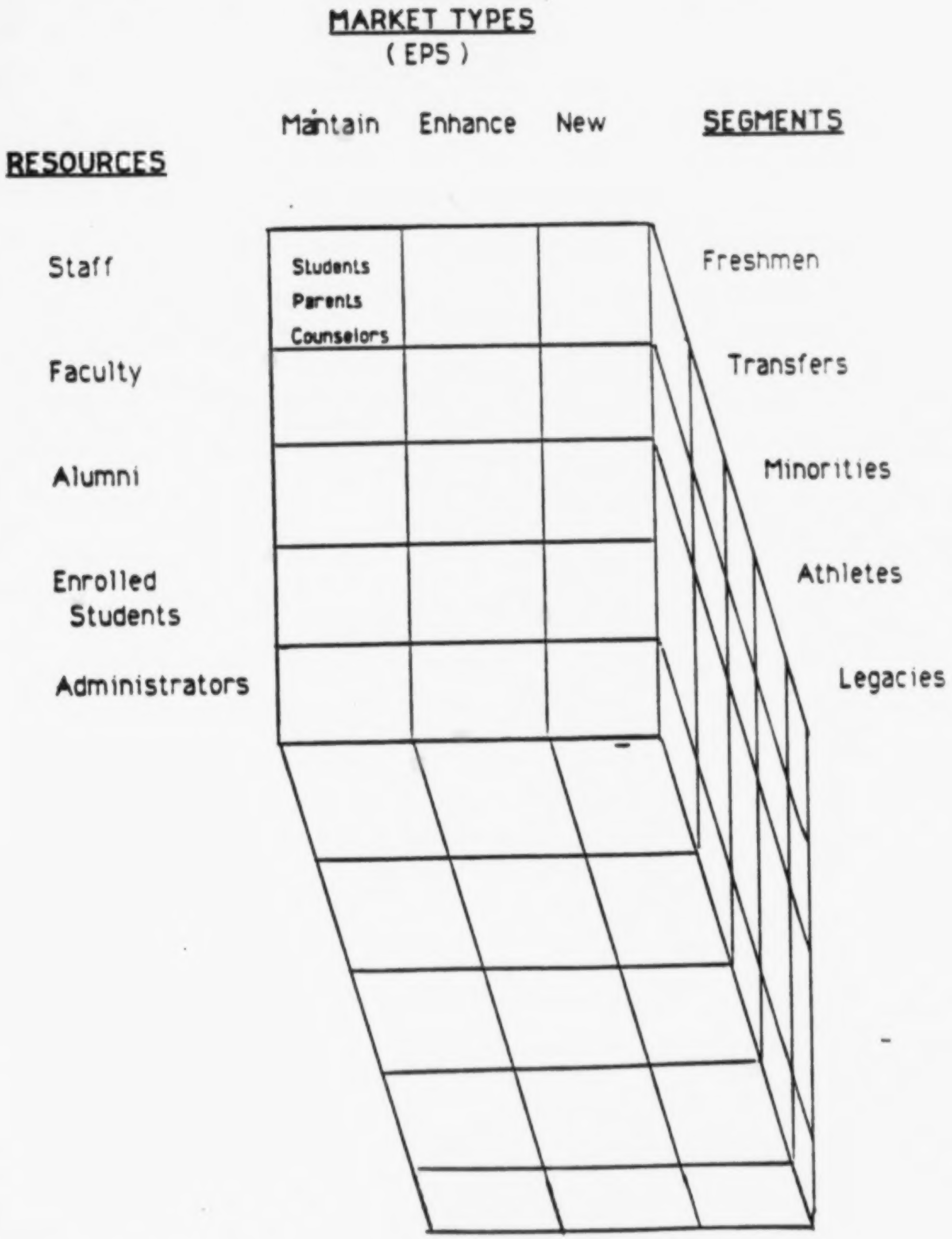
Rather than simply saying strategic planning is something we ought to do, the creation of a planning paradigm would help by breaking the relatively complex admission activity into several smaller elements. This model is an attempt to "get our arms around the problem." It is but a starting point which will change over time as our collective expertise and experience grows. Also, the admission process is only one element in a comprehensive enrollment management effort. Although the focus for this discussion is admissions, it should be pointed out that similar modeling can and should be used to identify opportunities in areas such as retention. In addition, the model proposed below is intended to be adaptable to accept new elements as they are identified. The model should also be helpful in thinking about the wide array of activities currently in place. Finally, the necessity for an interrelated approach will become apparent.

The basic rational of the model is to view recruiting as a complex set of activities which vary along several dimensions. These dimensions are shown in Figure 1. The first dimension is Resources and it includes a list of

Figure 1


MARKET TYPES
(EPS)
Maintain
Enhance
New
SEGMENTS
RESOURCES
Staff
Faculty
Alumni
Enrolled Students
Administrators
Students
Parents
Counselors
Freshmen
Transfers
Minorities
Athletes
Legacies

participant groups which are involved in the recruitment function. For example, admissions staff, enrolled students, faculty and alumni would be included. It might also include publications, search and other similar activities rather than groups. The second dimension is the College Board's Enrollment Planning Service market definitions which identify new markets which need to be maintained and markets which need to be enhanced. The third dimension is Student Segmentations and it includes freshmen, transfer, minorities, athletes and legacies.

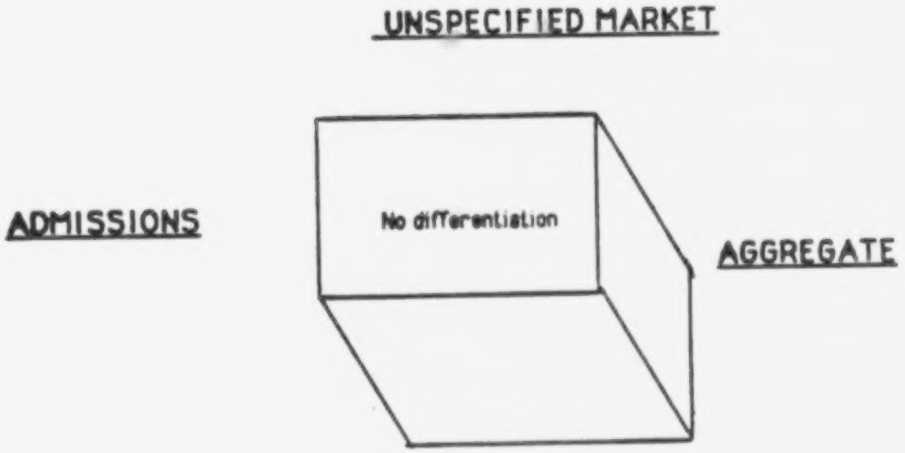
At this point, the model becomes too complex for representation in a two-dimensional space. However, there are two additional dimensions which need to be noted. The fourth dimension represents several Recipient Groups and includes prospective students, their parents and high school counselors. This list could also vary in complexity. The fifth dimension is the stage of the Application Chronology and includes prospects, inquirers, applicants, accepted candidates and matriculants.

Each of the cells created by the intersection of dimensional levels represents a unique activity. Each is unique because of the combination of dimensional levels and therefore may be thought of as a distinct opportunity. For example, imagine a cell which represents the following intersection: Resource = faculty, Market = enhance, Student Segment = female freshmen interested in engineering, Recipient Group =

prospective student and Chronology = accepted applicant. One possible activity corresponding to this intersection of dimensional levels might be a faculty letter to accepted female engineering applicants explaining research opportunities available to undergraduate women engineers at the university. The overall goal is not necessarily to completely fill every cell with an activity. The goal is, first, to identify the current marketing mix and secondly, to identify new opportunities.

The question of marketing mix is central to the exercise of strategic planning. Planning for the most efficient use of limited funds involves first identifying the current mix and then deciding on the desired mix. The desired mix probably varies by institution depending upon the institution's goals and current status vis-a-vis each of its constituencies. In the simplest case, probably not reflected at any institution, there would be only one level within each dimension. This model is shown in Figure 2. In this case the admissions staff carries all the recruiting responsibilities and activities are non-differentiated with regard to markets nor with regard to student segments. Most operations are more complex than that which is represented by Figure 2, but less differentiated than what is seen in Figure 1. Levels of complexity depend on several things, including commitment to targeted marketing, budget, research support and staff experience. In addition, the complexity which can be supported is a function

Figure 2


UNSPECIFIED MARKET
ADMISSIONS
No differentiation
AGGREGATE

of the variety of research available to provide insight into differences which exist between and among dimensional levels. However, a discussion of the types of research activities appropriate to support strategic planning is both beyond the scope of this discussion and well represented in the literature.

Under a strategic model, the functions of the admissions staff necessarily broaden to include mentoring other resource groups. How else could the alumni learn about recruitment unless the admissions staff teaches them? Similarly, identifying strategies for interacting with different student groups also requires a teaching mode for admissions professionals. In other words, the emphasis for the admissions staff responsibilities must evolve from that of executing all activities to one which includes identification of new techniques and mentoring.

It is unreasonable to expect that the emerging plan should represent the entire range of possible complexities of the model. The model ideal should only be used as a strategic response in an environment without limitations. The model, therefore, should be viewed as an unobtainable ideal. The extent to which we are able to approximate it, however, will depend upon creative thought from many sources. We will have to identify current activities which do not work, ask why and drop or amend them. We will also need to identify current activities which do work, ask why and think about the transferability of those successful elements to other activities. As a result of such program evaluation the implemented model will evolve over time.

The available research should be reviewed vis-a-vis each of the cells in the model. For example, we know the importance to prospective applicants of contact with current students. Can we orchestrate the identification of topics for discussion between enrolled students and prospects? Probably not entirely since many interactions take place independent of admissions activities. We can, however, have an impact with those student groups which represent relatively formal resources. Is it reasonable to bring the research findings to them and request they address issues we know are of importance? This is but one example of research utility. Many other examples can be found in the literature.

Thought needs to be given to the specific objectives required for each of the market types. For example, it is probable that the mix of resource groups and their respective activities would vary by market type. In a new market area much of the initial effort probably needs to be done by the admissions staff. This would include the traditional contacts such as high school visit, college nights, college fairs and contact with high school counselors. Simultaneously, alumni groups would be formed and trained. Over time, alumni might be introduced to high school counselors and plans would be made for enhancing alumni participation and alumni contacts with high school counselors and prospects. In established markets, those to be maintained, enrolled students could perhaps take on a greater participation: visiting their former high schools during breaks. Established alumni groups could host applicant receptions, meet prospects and host accepted student receptions along with the aid of enrolled students. The point is that the mix of activities could differ by market type.

As can be seen, strategic planning is often a response to topics or concerns identified by professional experience and research activity. It requires responses to a set of complex interactions in order to be of maximum effectiveness. Given the certain impact of demographic imperatives such planning should be taken seriously. For this reason, strategic planning must evolve from simply being something which receives lip service and cursory treatment to a well supported basic function of enrollment management.

PLANNING: STRATEGIC AND OPERATIONAL
HOW DO THEY FIT TOGETHER

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INTRODUCTION

This paper draws from case studies at a major multi-campus university to illustrate the relationship between Strategic and Operational Planning. The case studies are presented within the context of an institution which has a mature five year Strategic Plan and is preparing to develop its second plan. Two functional areas, Development/Fund-Raising and Telecommunications were identified as priorities in the plan. The successful implementation of both was crucial to the perceived success of the Strategic Plan.

Why Should an Institution Plan?

Planning focuses attention and increases effort toward common goals. The quality of institutional decision-making improves as decisions become more goal-oriented and better informed. Planning identifies and orders priorities, improving institutional effectiveness and organizational control over the future.

The process of planning also tends to improve the quality of the institutional data base. Managers begin to take data generation and analysis seriously when they realize that it will impact decision-making. Most importantly, planning increases the credibility and acceptance of decisions. Each individual decision is connected to other decisions and integrated into the institutional context. Therefore, decisions gain legitimacy as they are perceived to be based on solid information and placed within the context of a series of ordered planning priorities.

WHAT IS STRATEGIC PLANNING?

Strategic planning is a management activity which enables an organization to capitalize on existing strengths and make effective progress toward explicit goals. It deals with a wide array of internal and external factors including; the changing environment, organizational strengths and weaknesses, and opportunities for growth.

An organization initiating a strategic planning process must examine its environmental limits, consider external opportunities, and evaluate its competitive position in light of market demands. Internally, it must identify major strengths and weaknesses, analyze its resource base, and evaluate the effectiveness of its organizational structure.

What Kinds Of Decisions Are Made In a Strategic Plan?

Mission Related Decisions - Mission related decisions include re-examining the philosophy and rationale of the institution. Following this is an examination of institutional scope, in light of changing environmental demands and clientele or societal needs, and an overall look at goals and objectives. This step may result in rewriting the institutional mission statement.

Programmatic Decisions - Programmatic decisions involve the total institutional agenda including academic programs, research commitments and public service activities. This agenda should be evaluated against the newly endorsed or reformulated mission statement. Does the program mix remain appropriate? Is the institution serving the clientele identified in the mission statement?

Organizational Structure - Rethinking institutional priorities is a good time to evaluate the institutional administrative structure and governancemechanism and to consider the nature and role of the Board of Trustees.

Are they appropriate to implement the Strategic Plan? Do they present the expertise necessary to move the institution in new directions?

Resources - An evaluation of all institutional resources including physical, fiscal, human, and information resources should be undertaken. Are functions which ought to be self supporting or income producing doing so? Does the institution need to identify new resources? Are the priorities identified by Mission Related decisions and Programmatic decisions reflected in an appropriate budget?

Four Steps In The Strategic Planning Process.

1. Environmental Assessment - identifying trends in the environment, and their implication for the institution.
2. Institutional Assessment - looking within the institution to clarify and agree upon strengths and weaknesses.
3. Values Assessment - considering institutional mission, values, and aspirations.
4. Plan Development - the process of developing strategic direction. This fourth step should be undertaken only after careful completion of the first three steps.

Plan Development

Three elements are essential to successful strategic plan development: leadership, an environment conducive to planning, and meaningful participation. The President and the Board of Trustees must exert strong and visible leadership. This role is important primarily at the time the process is initiated and when recommendations surface. An environment conducive to planning features mutual trust, acceptance of new ideas and a tolerance for change. Finally, the perception of meaningful participation means that major constituent groups feel that their interests are represented. These three constants, although their details may vary by project, characterize successful planning processes.

The planning calendar, the length of the planning horizon and the level of detail vary by institution and by specific project. A planning calendar works best when it follows natural institutional rhythms - Board of Trustee meetings, semesters, term vacations, etc. The length of the planning horizon should relate to the annual budget cycle. A shorter planning horizon, will result in a tighter connection between the plan and the budget. The level of detail in a plan varies by institutional custom and experience in planning.

Why Implementation Often Fails.

1. Lack of initial endorsement or the removal of that endorsement by management.
2. The planners either overly raised expectations or overemphasized change early in the process.
3. Insufficient participation resulted in a lack of "ownership" of the plan.
4. Failure to translate a strategic plan into explicit operating plans which specify responsibility for tasks.
5. Failure to link strategic and operating plans to other systems, such as academic program planning, student affairs, research, budget/resource development, information systems, and human resources programs.

WHAT IS OPERATIONAL PLANNING?

Operational planning is the process of implementing a strategic plan by translating it into explicit task oriented plans with clearly assigned responsibility for accomplishment. Operational planning links the strategic plan to specific institutional functions such as resource planning, academic program planning, information systems, and human resources planning. The operational planning process includes setting priorities, determining resources, and dealing with tradeoffs between long-term and short-term goals.

Setting priorities among long-term and short-term goals is especially important. Insufficient knowledge about long-term goals is often a reason for non-implementation of both strategic and operating plans. Short term goals are visible and easily comprehended. However, to emphasize long term goals, an organization must take positive and explicit steps. Managers who do not understand how their operations fit into an organization's long term goals become confused and find it difficult to relate their performance to those goals. Successful implementation requires assignment of specific responsibilities which can be related to performance appraisals.

Steps In The Operating Plan Process.

1. Define the (problem) planning task. Emphasize the connection to the Strategic Plan.
2. Obtain top management endorsement of the planning task and problem definition.
3. Designate a Planning Team. It is important to provide an initial charge from top management including an agreed upon problem definition, and a proposed project time table.
4. Allow the planning team sufficient time to brainstorm around the problem.
5. Provide an infusion of appropriate research.
6. Develop planning team recommendations.
7. Meet with management.
8. Finalize planning team recommendations and implementation plans.

CASE STUDIES

The relationship between Strategic and Operational planning can be illustrated with reference to two case studies at a major multi-campus public University.

The University organizational structure calls for delegation of operating decisions to each of three campus Chancellors. Issue area which require Board of Trustees approval, including policy development and planning, are coordinated through a central President's Office. Certain administrative operations including systems development/data processing, investment management, internal auditing and selected accounting functions are shared and supported by the campuses.

Both case studies involve issues of University-wide interest and responsibility. The first involves planning for a Development/Fund-Raising operation at a public University where it previously had been a low priority. Although the President had delegated fund raising to the campuses, there was a University-wide Foundation used to facilitate various Development functions, and to retain private custody of certain gifted assets. This case study specifically focuses on developing an operating plan and a financial plan for this University-wide Foundation.

The second case study deals with planning for a University-wide telecommunications system. This system was to be designed to create a three campus, state-wide telecommunications network to interconnect all three campuses, to replace the campus telephone systems and to provide each campus with an appropriate data network. The President defined this as a University-wide project based on its size and scale and the necessity of intercampus integration. Potential cost savings made possible through large volume purchasing were a secondary, but important consideration.

The First Case Study: Planning for the University Foundation.

1. Define the problem:

Development and various "self help" efforts had been identified as a priority in the Strategic Plan.

A University-wide Task Force had (even before the Strategic Plan) assigned responsibility for Development /Fund Raising to each campus. However, the University Foundation, which is an essential vehicle for private fund-raising and custody of acquired assets was clearly the responsibility of the President's Office.

The President wanted the University Foundation to become re-invigorated in order to support campus fund-raising efforts and to be fiscally solvent.

2. Management Endorsement:

Strong presidential endorsement was obtained early in the project, with the president identifying the fiscal solvency issue and designating and charging the planning team.

3. Designate a Planning Team:

The planning team included the campus chief Development Officers and other major "users" - i.e. those people who used and expected services from the University Foundation.

The planning team was assigned a specific task - developing a three year plan to re-invigorate the Foundation and to provide for fiscal solvency.

4. Brainstorm:

Resulted in several initial proposed solutions.

5. Research:

-initial data gathering

-external data gathering-- comparative research on other University-related Foundations

6. Recommendations:

The planning team developed A Three Year Plan and A Five Year Financial Plan.

7. Planning Team Meets With Management:

The Planning Team briefed the President's Executive Council which includes the campus CEO's. The Plans were accepted and endorsed by the governing boards of the University and the Foundation. Both Boards passed major policy changes based on recommendations in the Plans.

8. Implementation:

The planning team finalizes recommendations and implements plan.

Outcome

Recommendations in the University Foundation Three Year Plan and Five Year Financial Plan were only partially implemented. Specific priorities which could be acted upon centrally by the President were accomplished. Implementation was less successful however, in those areas which required campus action. This was because those planning team members assigned implementation tasks had limited control over their environment. Although there was support from the Board of Trustees, leadership turnovers resulted in insufficient monitoring of plan implementation and compliance with Trustee Policy.

The most important factor in achieving even limited implementation, was the strong relationship of the operational planning task to the Strategic Plan. Both problem definition and management endorsement flowed directly from the Strategic Plan. It was clear that changes in the University Foundation were critical to facilitate progress toward the important strategic priority of Development/Fundraising.

Although implementation is temporarily stalled, there is the strong possibility of further implementation in the future. This optimistic analysis is based on the institutionalization of change demonstrated by the policy changes adopted by the Board of Trustees and the Board endorsement of the plans themselves. As future issues surface, they will be resolved within the context of the existing plans and policy documents .

The Second Case Study: Planning for Telecommunications.

1. Define the Problem:

Identified as a priority in the Strategic Plan.

A University-wide Task Force recommended action on the priority and developed an initial set of guidelines.

Each campus completed its own needs analysis and concluded that a modern telecommunications system was needed.

2. Management Endorsement:

Strong presidential endorsement - The president named the planning team and provided their charge.

3. Designate a Planning Team:

A strong planning team with representatives from each campus was named including several people hired specifically for this task.

The planning team had access to external consulting assistance as needed.

The planning team developed a timetable.

4. Brainstorm:

Numerous alternative scenarios were considered both by the earlier University - wide Task Force and in initial planning team deliberations.

5. Research:

Anecdotal material about other institutions was collected through direct contact with the institutions, attendance at seminars and workshops, and through telecommunications consultants.

6. Recommendations:

The planning team's recommendations resulted in a detailed draft Request For Proposal.

7. Planning Team Meets with Management:

The planning team briefs the President's Executive Council.

8. Implementation:

Planning team finalizes recommendations and implements the plan. The completion of this phase of the planning process will occur upon issuance of the RFP.

This project has not yet reached the same point of maturation as the previous case study. It is now between the draft recommendation step (6) and the meeting with management step (7). The telecom planning project has at various points slowed down and even stalled on financial issues. This is a problem not unfamiliar to many "technical" projects. The fiscal people are content to leave the planning to the technically oriented staff. However, they then raise financial issues and problems when the project team is ready to seek general consensus and top management approval. The planning team should have made more aggressive efforts to obtain the attention of the fiscal people earlier in the process.

Another problem for this project was the difficulty of obtaining sufficient data. State procurement policy allows only limited communication with vendors prior to issuing an RFP. Since we are dealing with new technology, on a scale which has never before been tried, this inability to communicate is especially limiting.

Furthermore, the project has encountered difficulties because of its innovative nature. In addition to raising the usual anxieties brought about by fear of change, it represents a genuinely new technology which is understood by very few.

CONCLUSION

These case studies illustrate that identification of a priority in the Strategic Plan is a necessary but not sufficient factor in successful Operational Planning and implementation. Just as they are essential elements for Strategic Planning, support from top management, the quality of the planning team and the ability to gather appropriate data are important to the Operational Planning process.

In the final analysis, the focus must be on: Adapting Planning To Reality.

1. Emphasize the planning and implementation process not the document. Create an organizational structure and develop policies which will institutionalize change.

2. Explicitly state and define planning assumptions. Examine historical and current trends, understand the market and the relative positions of major competitors and become familiar with various future scenarios.

3. Gear planning and implementation to events. Whenever possible, actions and expenditures should be keyed to events or completed milestones rather than the calendar. For example, Department A will receive funds to hire two new faculty to develop a graduate program after its undergraduate enrollment has reached X level.

4. Link planning to budgeting. Budgets are the fiscal operating plans of the organization - the mechanism through which plans become programs/actions. Is there communication and a shared agenda among those units responsible for planning and those responsible for budget? Are priorities identified in the planning process communicated to the Budget Office? A plan developed in isolation from the budget has little prospect for implementation; a budget which doesn't relate to a plan has little relevance.

5. Develop a mechanism for deciding among competing priorities. Include an agreed upon process for evaluating progress and abandoning projects which are not working. All projects should have specified dollar and time goals against which to measure progress and evaluate alternatives.

6. Develop an annual update and monitoring system. The update should re-examine assumptions and priorities, as well as identify new priorities in response to changing conditions. Progress toward implementation should be measured with reference to events and time.

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THE ROLE OF INSTITUTIONAL RESEARCH IN UNIVERSITY ADVANCEMENT ACTIVITY

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"Strategic planning" is a buzzword that is currently receiving a lot of play in higher education circles. Planning at the University of Delaware has always been a priority, and when the President of the University created the position of Assistant to the President for Institutional Research and Strategic Planning, it was not with the intention of reinventing the wheel. Indeed, the University's planning process over the past two decades has resulted in a controlled growth in enrollments and programs which has resulted in the institution's emergence as a major research university with one of the most significant endowments in the nation. Why then the emphasis on strategic planning?

It would be safe to characterize both the University of Delaware and its President as extremely conscious of the process of environmental scanning. While the past 20 years have been prosperous for the institution, its top leadership and its Board of Trustees are not oblivious to the changing environmental context within which the University of Delaware must operate. While the University has enjoyed enrollment growth at a period when other institutions have experienced declines, it is not unaware of the constriction in the pool of college-bound high school seniors. Despite the growth of its endowment, the University must cope with cutbacks in vatious federal programs that affect both curricular programs and the faculty and students who populate them. The situation facing the University of

Delaware is the same that faces all institutions of higher education: how do we manage in a turbulent organizational environment that is becoming increasingly uncertain?

The University of Delaware has taken an innovative approach to answering that question and has chosen to utilize the Office of Institutional Research and Strategic Planning as one of the cornerstones in that approach. "Institutional advancement" at many colleges and universities has become synonymous with fundraising and other development activities. While such activities are essential, indeed critical to institutional survival, the University of Delaware has chosen to expand the definition to emphasize **advancement**, i.e. positioning the University in an optimal posture in all aspects of its operations. To that end, the President's Office, spearheaded by a creative and highly capable Executive Assistant to the President/University Secretary who developed the concept, has created an Institutional Advancement Team. The Advancement Team is composed of the following actors:

Excecutive Assistant to the President/University Secretary,
  Chair of the Advancement Team

Director of Information Services
Director of Development and Alumni Relations
Director of University Relations
Director of Records Management/University Archivist
Assistant to the President for Institutional Research and
  Strategic Planning
Assistant to the President for Economic Initiatives

The Advancement Team collectively plans and executes capital campaigns, annual giving campaigns, alumni solicitations, and other activities associated with traditional fund-raising and development processes. However, in light of the broader definition of institutional advancement envisioned by senior administration at the University, the Advancement Team is involved in a broad spectrum of activities to which a team approach is uniquely suited. Consider the following:

1. **ENROLLMENT MANAGEMENT** The Office of Institutional Research and Strategic Planning, in concert with the Office of Admissions, has developed a market research strategy designed to assess the University's position in the admissions marketplace. The strategy focuses not only on defining the institution's major competitors, but also fully assesses student perceptions about the University vis-a-vis those competitors, measures which information dissemination strategies are most effective among college-bound high school seniors, and pinpoints those factors that are critical to a student's decision to accept or reject an offer of admission from the University of Delaware. These data are then shared with the Advancement Team, where the Director of Information Services enhances those information dissemination strategies identified as most effective and customizes them to the various audiences for which they are intended. In so doing, the University Archivist and Director of University Relations become key resource persons, as does the Director of Alumni Relations with a nationwide network of information dispensers/student recruiters. While this is a snapshot overview of an extremely complex process, it is clear that enrollment management is not the responsibility of just one or two offices on campus. It is a key component of institutional advancement as Delaware defines it.

2. **Economic Initiatives** The State of Delaware is a highly attractive environment for business and industry, and the University of Delaware is a natural magnet in attracting new enterprises to the state. The University was named by the National Science Foundation in 1985 as one of only a dozen national research centers for its work in composite materials manufacturing. Working with the College of Engineering and its Center for Composites Materials, the Advancement Team is assisting in the identification of potential industries and employers in the composites manufacturing area that might be recruited to Delaware, is a joint partner in an economic impact study projecting the consequences of successful industrial recruiting for the state's economy, labor force, and for the University itself. As with student recruitment, industrial recruitment will involve the diverse talents that have been brought together under the single umbrella of a University Advancement Team. Similar activities are being conducted in the areas of food processing and packaging, as the University shares its natural curricular strengths to enhance the state and region that it serves.

The points to be made in this paper are not simply to extoll the University's approach to institutional advancement, although it clearly is an approach that is innovative, that works, and that merits being shared with others. The second major point of this paper is to demonstrate to practitioners of institutional research that their activities need not be confined to the traditional concept of "numbers crunching." Institutional research has a real place in the strategic planning process. It is the Office of Institutional Research and Strategic Planning at the University of Delaware that acts as the quantitative engine in the enrollment management process at the University, and that counsels appropriate offices on strategies for effective student recruitment. It is the Office of Institutional Research and Strategic Planning that collects relevant data on potential businesses for recruitment to Delaware, and that acts as liaison with the Economics Department in conducting economic impact studies with those data. It is the Office of Institutional Research and Strategic Planning that developed an institutional mission matrix that pulls together relevant institutional documents for use in writing case statements as the University approaches diverse audiences for diverse reasons, including the solicitation of contributions.

One can read national publications and see expressions of concern for institutional research as a function within colleges and universities. Old concepts of institutional research that fall under the general heading of "numbers crunching" are an endangered species. However, the fact that there are fewer student and faculty heads to count, fewer external funding sources to which to report, etc. opens up an array of new avenues for creative researchers who truly wish to involve their offices in strategic planning. Those offices which become true environmental scanners will find more work than they can handle. Those who confine themselves to traditional approaches to institutional research may go the way of the dinosaurs.

The University of Delaware would be delighted to further expand upon its approach to institutional advancement, and the depth and breadth of activities in which its Advancement Team is involved. Interested parties should feel free to contact the Office of Institutional Research and Strategic Planning with expressions of interest.

PLANT UPKEEP AND FINANCIAL EQUILIBRIUM: WHAT DOES IT TAKE TO STAY IN BALANCE?

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ABSTRACT

Colleges and universities should pursue a long-term strategy designed to maintain the value of plant assets to the on-going program of the institution. Various methods have been proposed for anticipating and funding the expenditure levels needed to reach this goal. These methods are briefly reviewed, a different conceptual approach is suggested, and several practical problems in implementation are explored.

PURPOSE

How much should we be spending on physical plant upkeep? The physical facilities of our institutions are assets whose value must be protected, just as the purchasing power of the endowments should be preserved. There are both conceptual and practical problems in answering the question. What sorts of expenditures do we count toward upkeep? Boiler replacement yes, but interior painting no? How do we count the capital spent on a new building that replaces an old one? If we are way behind now, do catch-up expenditures count, or only those after we reach a "stable" level? What is the level of expenditure we should be shooting for, anyway? What are the funding sources available to meet that level of expense? Recent suggestions by the Financial Accounting Standards Board (FASB) that colleges and universities should undertake full depreciation accounting have focussed attention on the need for more systematic approaches to the problem.

STANDARD ALTERNATIVES

Various conceptual approaches to the determination of spending levels have been summarized in recent articles (Callnan and Collins, 1986; Kaiser, 1982.) The simplest, most widely used, and least satisfactory approach is **straight-line** or **historical** funding. You budget for this year what you spent last year, plus some adjustment for cost escalation or changes in the size of the facility base. While this strategy may make for relatively stable budgeting, there is no basis for knowing whether this spending level adequately preserves the plant assets. A second approach, adopted in recent years at a number of institutions, is based on an **identification of needs**. A careful inventory of anticipated (and/or desired) expenditures is taken, and budgets are established to accommodate them insofar as possible. Clear advantages here are responsiveness to perceived problems and enhanced ability to anticipate and budget projects over several years (Flanagan, 1983.) A disadvantage of this strategy is its inability to deal with slow changes over time. Thus a school with a set of new buildings could spend very little for a decade or two, but then be faced with massively increased upkeep needs.

In response to the inadequacies of these strategies, more sophisticated approaches have been suggested. **Formula funding** can take several forms. **Depreciation** accounting, as suggested by FASB but not yet adopted in standard college and university fund accounting practice, is straightforward, but followed by very few schools. The institution would establish an expected life for each facility and charge against current operations the annual fraction of its cost. A more complex and interesting approach (Kaiser, 1982) breaks the cost of each building down into its component systems -- foundations, roofing, plumbing, electrical, HVAC, etc. Each of these systems has its own **life cycle**. Wall and floor finishes may have only a 10-year life, HVAC systems 25, and foundations 100 years. Budget provisions can then be made based on the resulting system depreciation formulas. The most complex and interesting formula funding approach we have seen was developed at Stanford as a computer model. Hutson and Biedenweg (1982) incorporate into the system life cycle concept a provision for buildings of various ages, and anticipate expenditures based on sets of pessimistic, likely, and optimistic assumptions about timing.

These approaches provide increasingly good tools with which to anticipate and plan for plant upkeep expenditures. But nagging questions remain. What about catchup maintenance? With the exception of the needs identification approach, these models presume that the plant is in good shape and simply needs to be properly maintained. What about new construction that replaces old plant? And what about adjusting the plant to the institution's changing needs?

The life-cycle strategies outlined above provide good planning tools to deal with plant upkeep, but seem to us not to take account of catchup maintenance or of plant renewal. We need a new way of thinking about the total size of the task. The equilibrium concept presented below is a new way of judging the height of the mountain to be climbed. How far up that mountain you can go, and at what rate, depends on your institution's financial circumstances and program priorities. We also recognize that, in addition to our surveyor's telescope, you will need other tools to plan specific renewal programs and to keep track of the progress you are making.

PLANT UPKEEP IN THE CONTEXT OF FINANCIAL EQUILIBRIUM

The concept

In recent years, many colleges and universities have structured their budgeting and investment policies to assure that their institutions operate in financial equilibrium. Budget officers not only seek present-year balance, but examine and try to control rates of change in budget categories so as to maintain balance into the future. Trustees have established investment and payout policies that try to preserve the purchasing power and the budget leverage of the endowment over time. Can such an approach be useful for plant upkeep planning?

To maintain the endowment's value to the institution, two difficult tasks must both be successful. First, a satisfactory balance must be struck between investment strategy and payout rates. Investments should produce a long-term total return significantly above inflation, but should be conservative enough to protect the capital. Payout rates should be set at a level that provides predictable support for current operations but allows reinvestment of the balance of the total return so as to protect the purchasing power of the endowment. If institutional budgets were stable, this balance of investment return and payout rate would allow the endowment to contribute a steady proportion of the needed operating support. College and university budgets rise faster than inflation, however, given the labor-intensive character of the industry. Furthermore, many schools seek growth of programs, faculty and facilities, and consequently experience even more rapid budget escalation. Thus the second difficult task: new gifts to endowment are needed regularly, if the endowment's contribution to operating budgets is to cover a constant share of a rising base.

The analogy to endowment equilibrium planning is straightforward. The preservation of the value of plant assets to the institution also can be thought of as having two components: **plant upkeep**, and **plant renewal.**

In the endowment area, the first challenge requires investing well, paying out modestly, and plowing back enough to maintain present purchasing power. With plant, that first challenge means spending on **plant upkeep** at a rate that maintains the usefulness of the plant for present purposes. Facilities have to be kept up, over the long term, in a condition that satisfactorily supports their current use.

The second endowment equilibrium challenge -- most severe for institutions with growing budgets or changing missions -- is to obtain capital inputs over and above the on-going base. A steady flow of new gifts to endowment is needed to maintain its relationship to a growing expenditure base. Similarly, institutions need **plant renewal**: the physical plant must be adapted over time to meet changing needs.

The initial step in moving toward this equilibrium is often very painful. An institution that has been paying out of its endowment at too high a rate, thus eroding the value of the endowment, must reduce the payout rate to a sustainable level, thus cutting its revenues. An institution that has been deferring maintenance, eroding the value of its plant, has to bring deficient buildings and utility systems up to reasonable condition, significantly increasing its expenses.

Thus a composite strategy is needed to estimate the total amount that an institution should be putting into the plant to maintain its value to on-going operations:

1. Determine the amount that should be expended on a continuing basis on **plant upkeep**, maintaining the plant in good condition to support current operations. The system life cycle approach seems appropriate for this purpose, especially if adapted to the age of present facilities, as in the Stanford model. The annual costs may approximate 1.5-2.0% of the replacement value of plant assets.
2. Determine the additional level of funding needed for **plant renewal**, reflecting anticipated changes from growing programs, altered missions, or changing technology. These costs may well range from 0.5-1.5% of the replacement value of the plant.
3. The sum of the amounts for plant upkeep and for plant renewal is what the institution should be setting aside annually.
4. If the institution has a significant backlog of deferred maintenance, the amounts set aside should be significantly **higher** than the calculated total of upkeep and renewal, for a long enough period to bring the plant up to a reasonable level.

Funding sources.

The total dollar amounts resulting from these calculations are apt to be frighteningly high if looked at only in the perspective of the present operating budget. Expenditures on the order of 3% of current plant replacement cost are to be expected, with higher values in research-intensive institutions and those with significant catchup maintenance to perform.

Ideally, private colleges and universities could assure adequate upkeep and renewal funding by fully endowing those costs when each building is constructed. The estimated costs can be capitalized, these funds raised, and the payout used in the operating budget. For buildings that generate directly attributable revenues, such as dormitories or dining halls or sponsored research labs, an institution sure of being able to capture some of the upkeep and renewal funds from those revenue streams can discount the endowment needed. Thus the building use portion of anticipated indirect cost reimbursements flow can be deducted from the upkeep and renewal cost needed, with the net being capitalized.

Few if any institutions have the outside gift support needed to implement this approach completely. For the rest, funding for upkeep, catchup, and renewal can be sought separately.

It does seem appropriate that the present generation of students (or taxpayers, for public institutions) should pay for the costs of keeping the physical plant in reasonable shape for current use. Thus we suggest that plant upkeep funds should come from the operating budget. Note that for institutions with a heavy commitment to technology and major sponsored research activities, indirect cost reimbursements for plant use are intended to meet this need. (The 50-year building life presumed in ICR formulas seems inadequate; something more like the IRS provision of 15-20 years would give a more realistic base.)

Catchup maintenance represents a sin of past fathers that will have to be borne by present children. Fund-raising for this purpose may cover a portion of the cost, but these projects are typically not attractive development opportunities. Many institutions have borrowed in order to undertake major catchup projects, a viable strategy but a deceptive one if they allow the repayment costs to use funds needed for ongoing upkeep.

Plant renewal expenditures often represent more attractive fund-raising targets. Upgrading of laboratories, conversion of buildings from one use to another, or even the replacement of older facilities with new ones, may provide naming opportunities. For public institutions, these funds will usually come in capital appropriations in addition to their operating costs. Again, borrowing may be an alternative, provided that the repayment costs do not displace funding needed for ongoing upkeep.

Expending these funds.

The decisions on how much is to be set aside or raised for plant catchup, upkeep, and renewal should be separated from the decisions on how those funds are best spent, just as investment and payout decisions on the endowment should be separated from decisions on how the endowment income paid out to operations is to be spent. In both cases, the important thing from the expenditure side is to know with some security what the level of funding is to be over time.

The financial manager should provide a mechanism that accumulates the needed funds. That pool will be fed through streams from current operations to support plant upkeep; streams from borrowings or other sources to cover catchup costs; and streams from external or other sources to fund plant renewal. The plant operations manager should develop a plan for specific projects, projecting these expenditures out over time. These plans can then be integrated into the institution's operating and capital budget plans for current and future years.

Our principal interest in this article is on the funding side, but there are some practical problems on the expenditure side we must note in passing.

First, what expenditures should be counted as catchup, upkeep, and renewal, and what ones should be excluded as being ordinary maintenance? We would of course include all capitalized plant upkeep or renewal expenditures. Beyone that, we would try to judge on context. Repair of a broken door lock is clearly maintenance, but replacement of the lock systems in a building would be a renovation. Interior painting in a room would ordinarily not count, but a remodelling of the room that included painting it would count. Construction of a facility that adds to the building stock would not count, but replacement of an existing facility would count to the extent of the replacement cost of the replaced facility.

Second, should one try to distinguish between catchup, upkeep and renewal? If one starts with a substantial list of deferred maintenance projects, there is continuing interest in the extent to which that total is being reduced. In practice, it will be difficult to distinguish. Most major projects will be part catchup, part upkeep, part renewal: an outdated lab will be renovated, brought up to compliance with new codes, and adapted for use by a new department.

Third, there will be political pressures. The amounts of money involved are very large; there will be a tendency to carry out a lot of small projects rather than reserving for really major ones. There will be arguments over priorities: who will determine what jobs get tackled when? Many of the truly important deferred jobs are invisible and unglamorous, e.g., utility repairs and replacements; they may be put off in favor of showier renovations.

Finally, it is likely that the institution will run into the curious problem that after only a couple of years it will be difficult to spend all the money our approach suggests. What happens is that it becomes necessary to take buildings off line to carry out major repairs and renovations, and most institutions simply cannot afford to have a significant facility out of service long enough to overhaul it properly. Institutions will need to tackle these jobs in pieces, spending more money in the process, or have the courage of their convictions and find alternative space.

RESEARCH AND PLANNING QUESTIONS

While in some ways this plant upkeep issue appears to be strictly a plant operations and finance matter, there are a number of questions to which institutional researchers and planners can help provide answers:

- What are the most useful definitions and categories with which to track expenditures on catchup maintenance, plant upkeep, and plant renewal?
- What methods are followed in taking inventory of present plant upkeep needs? Can these methods be improved?
- What are institutions currently spending on these activities?
- What funding sources cover what kinds of expenses?
- Do these expenditure levels and funding sources vary by institutional governance, size, or program mix?
- How is the level and character of building utilization related to plant upkeep needs? How is the level and character of on-going facility maintenance related to plant upkeep needs? As the full costs of plant upkeep emerge from this sort of study, are there changes in utilization or in maintenance practices that would be cost-effective?
- What is the best method for determining the extent to which a new facility can support its own long-range upkeep through the revenue streams it provides?
- What sorts of computer models of plant upkeep reserve funds can be developed? Such models, designed to facilitate sequence planning of major projects, should be able to project the future costs of such projects and the fund balances available (through various financing mechanisms) at each point in time.
- How can models like the Hutson-Biedenweg one be adapted for most effective use on your campus?

A PARTING WORD

Most institutions, public and private, have been underspending on plant for decades. It will be difficult for most and impossible for many to reach the level of expenditure we describe as desirable.

We urge colleges and universities at least to try to reach the level of plant upkeep funding described above. If they can, they may not be catching up, but they are not falling further behind. They may not be able in a systematic way to renew their plant for changing needs, but they will at least retain the usefulness of the plant in its present state.

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INFORMATION MANAGEMENT: DEALING WITH IMPERFECT SYSTEMS

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Institutional Research offices are responsible for collecting and reporting numerous and varied data to an assortment of internal and external audiences. More often than not, IR is the information distributor for the university community. As the Eighties sweep along, budgets tighten, and student FTEs (Full Time Equivalents) are growing scarce. It is increasingly important to have quick access to appropriate and timely data, so future scenarios may be projected and anticipated. Just as the IR staff are asked to cut their response time down, the number of requests they receive has increased dramatically. It was inevitable that IR professionals would embrace the new microcomputer technology to increase productivity.

The authors will describe a framework that the reader can use to improve effectiveness and satisfaction with PC information systems. The framework is intended to serve as a tool useful for specific situations. It would be very easy to write a collection of old "war" stories (Institutional Researchers are notorious for their). Often what is written for guidance and use with PC information systems tends to be more conceptual than practical, discussing generalities or giving overviews of what a "good" system should be. Hopefully, this paper may serve as a guide through the myriad of problems and issues in the PC environment today.

Why are systems imperfect and how can the reader maximize his or her current situation? Institutional Researchers work in a complex organization; many factors are beyond staff control. In addition IR staff are expected to be masters in politics, knowledgeable about all current data and information systems, and connoisseurs of hardware and software. It is amazing that we have succeeded to the degree that we have.

It is generally a good idea to be cognizant of the work environment. The first step is for the reader to place him or herself in the "big" picture. This allows one to identify the extraneous and local factors impacting upon a particular situation. The diagram in Appendix A outlines the influences the authors face as a part of a university center within the State University of New York system.

Neither the IR professional nor the IR office totally control how data and information is viewed and manipulated. The model outlines how the immediate day-to-day office setting and university community will impact on decisions. In this instance, SUNY Central directly affects staff in the IR office. Central mandates how student and faculty workload data is defined and the degree of accuracy necessary. Being a public university also means being responsive to DOB (NYS Division of Budget) with their requests for data and other organizations at the macro level that indirectly affect IR's work and focus.

As part of the environmental limitations, Harmon (1986) talks about why computer technology is not fulfilling its potential. With the technical demands of producing a particular product, one can forget to think of the implications of how the end product will impact the institutional environment. The way data is presented or manipulated directly affects how successful one is in getting additional data or resources. Many times data or needed resources are out of reach because those with power perceive a threat from the IR staff. Think of where the impact of the work will be felt rather than just proceeding with a technically feasible project. Reduce the possibilities that future barriers will be erected. Start slow and test the impact this output will have.

Microcomputer software often seems designed specifically to meet the needs of institutional researchers. Complex tables can be created quickly, modified easily, and displayed in a variety of ways. The ability to manipulate data easily and in meaningful ways allows for more complex analyses, in shorter periods of time, yielding richer and more useful interpretations. Microcomputers are also broadening horizons. Projects impossible in the pre-PC era are now implemented two at a time.

Initially (and inevitably), the slowest operation in any PC environment is entering data into the microcomputer. More specifically, the problem centers around the way in which people put data into micros. An excellent typist can type over 100 words per minute. A computer, at the slowest transmission speeds used, can "type" over 450 words in that same minute--and virtually never make a typographical error. Both the typist and computer are more proficient than the IR professional. Don't become a data entry clerk!

The advantages of electronically transmitting data from a mainframe to a microcomputer are easy to see--speed and accuracy. The process of implementing data transfer, however, is usually neither of these. The process can be divided into two broad areas of concern: the physical aspect of equipment and the organizational aspect - the politics of information management.

Physical concerns

The first question is whether or not the campus mainframe has a terminal interface. It may be difficult to believe, but there are still locations that process cards in a batch mode. Even if the mainframe allows terminals, there may no additional capacity available. If this is the case, it may be necessary to convince someone to purchase additional hardware. The director of computer operations will be able to answer these questions.

Next, someone must know how to correctly wire the microcomputer to the mainframe. More technically, there must be a person on campus able to configure an interface between a terminal line and a serial port on a microcomputer. As an alternative, a modem may be connected to the PC, and the mainframe accessed via a conventional telephone line (this presupposes, of course, that the mainframe has been equipped to receive input via telephone lines).

Finally, there must be software available, both on the mainframe and the PC, that is capable of extracting data from the mainframe, transmitting it in a useful format from the mainframe to the PC, and converting it into a useful spreadsheet, database, etc. This last requirement is the most important of all. While any mainframe can be made to extract data in a useful form - and numerous software packages exist to move data from mainframe to PC - not all PC applications are capable of interpreting a downloaded text or ASCII file into a useful format. Most application packages store information in their own idiosyncratic format, and cannot directly use data formatted for a different package. It is extremely important to ascertain whether or not the software publisher has included a program (often called a utility or link) to convert data from ASCII to internal formats. The best sources of information are someone already using the application or the manual provided with the application. (If you cannot find the former, the nearest computer store should allow a potential customer to read through the manuals.)

Just as important as converting a text file to an application's data format is the ability to swap data between different applications. Unless one is working with an integrated program (with several different applications all in one), there is no guarantee that database files can be transferred to the spreadsheet, from there to the graphics application, word processor, etc. It is both frustrating and costly to enter the same data into each application separately.

How does one know if data can be shared between application programs? Again, an experienced user is the best source of information, followed by the documentation for a particular program. It is more important to know what you are looking for. The DIF (Data Interchange Format) file, first used by Multimate, has become a quasi-standard for data transfer between different applications. DIF files can even be transferred intact between two very different microcomputer systems, such as an IBM PC and an Apple Macintosh. (A second, less familiar file format is Microsoft's SYLK (SYmbolic LinK) format). These files, when transferred, will still retain many of their original characteristics. If neither DIF nor SYLK formats are provided as options, there should be at least an option to create a text (ASCII) file on the disk. (This option often is created by a PRINT command of some sort, with the file being printed to a disk file rather than to a printer.)

Organizational Concerns

As important as the hardware and software are, it is even more critical to have access to data. This issue is an old one accentuated by the new technology. Without previous approval, one may encounter stumbling blocks not readily evident until the implementation phase. While this is obvious to IR professionals, it is not necessarily perceived that way by other campus offices. While in the long run perceptions should be aligned with reality, it is also necessary to learn to deal with the misperceptions in order to have these metaphorical trains "run on time."

In an idealized Administrative world, all offices acknowledge Institutional Research's role as a data-gatherer and information-maker with vast and diverse data needs. Access to files and data bases is taken for granted as a necessary prerequisite for operating effectively. Indeed, there are IR offices that exist in a state close to this ideal, but they are few and far between. (It helps tremendously to report directly to the President's office as the University at Albany does.) The majority of IR offices, however, must function in the less-than-perfect real world. They must rely on diplomacy and good will to gain access not just to data but to data that is accurate.

Do NOT ask the Computer Center for access to the data! On virtually all campuses, the Center functions as a gatekeeper; it does not create policy, and therefore has no ability to say "yes" to such a request. While it may be possible, on occasion, to convince the Computer Center that access is okay (particularly if the information can or has been received in other ways), it will certainly be an exception to a rule. (A Computer Center once denied one of the authors access to a file, EVEN THOUGH HE HAD ALREADY RECEIVED ALL DATA IN HARD COPY.) In the overwhelming majority of cases, the data-owner's permission must be obtained before data may be accessed.

The best way to gain approval from the data-owner is to simply ask. Most people in the collegiate community are happy to make their fellow employees more effective in their work. If one can also demonstrate that access will benefit the data owner's office in some way - a new report, more comprehensive error lists - the data-owner should be more than happy to grant access to data. Once again be sensitive to the data owner. Enlightened self-interest can be a very effective tool in getting what is needed, and probably works 99 percent of the time.

For that other one percent, less satisfactory and more convincing ways may be required. "Gentle persuasion," a euphemism for a veiled threat, can sometimes work. Rather than pointing out the benefits of data access, the IR professional describes the consequences of no access in terms of the detriment to the university community in general, and the data-owner's office in particular. Cite increased duties, reduced staff, or anything else plausible as a means to accessing certain data.

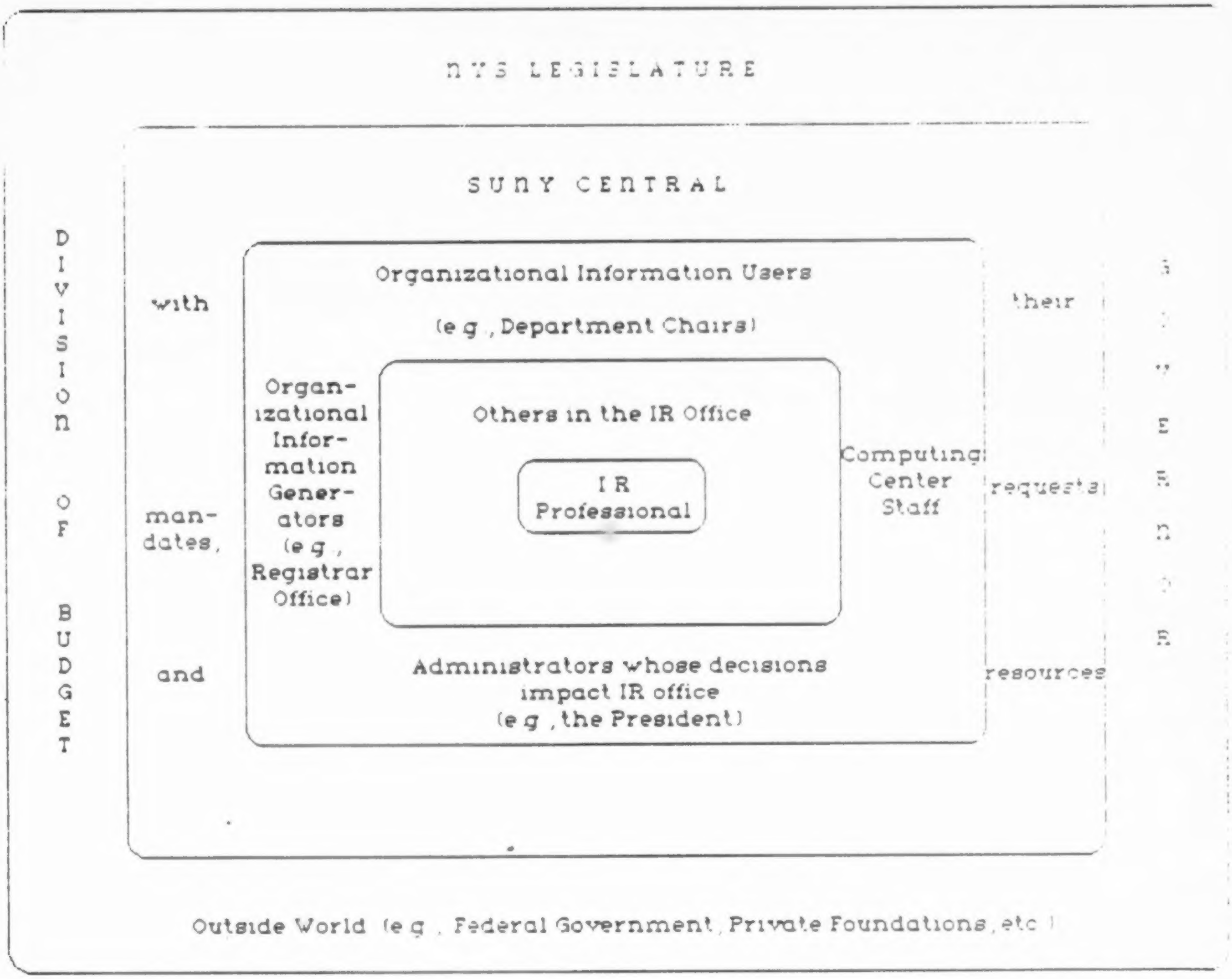
The last issue to discuss is money. There is never enough in the budget for all that is needed. Here are some tips.

- Try keeping a list of what is needed for budget time or in case someone asks.
- If somehow the enhancement to the system or new piece of software will also benefit another office, the other office could share the cost.
- Make sure what is wanted can be justified. Someone will ask.

- Sometimes the squeaky wheel works; other times it backfires. Test it out.
- Let those who make budgeting decisions see the PC work for the office.

While perfect systems are not on the horizon, create an approach to maximize the particular situation. This approach says computers can help in many ways with the investment of a certain amount of time and resources. The challenge for Institutional Research is to balance the time needed to create/maintain computer systems with their value to the organization.

APPENDIX A



NYS LEGISLATURE
SUNY CENTRAL
DIVISION OF BUDGET
with
mandates,
and
Organizational Information Users
(e.g., Department Chairs)
Organizational Information Generators (e.g., Registrar Office)
Others in the IR Office
I R Professional
Computing Center Staff
Administrators whose decisions impact IR office (e.g., the President)
their
requests
resources
GOVERNOR
Outside World (e.g., Federal Government, Private Foundations, etc.)

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THE IMPACT OF A NEW ACADEMIC STANDARDS POLICY ON DIFFERENT COMMUNITY COLLEGE STUDENT GROUPS

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Introduction

In recent years, post-secondary educators have faced increased pressure from external sources to improve the academic quality of the education they provide and, in the process, student academic achievement. Most of this concern about the quality of education has been translated into reform proposals for higher education which strongly suggest the use of higher performance standards, more rigid requirements, and firmer, more accountable policies and procedures.

Although the objective of these quality proposals, which is to insure that students receive a good education, cannot be faulted, most reform plans fall short by failing to consider the operational impact these policies will have on different student constituencies, especially the educationally, socially and economically disadvantaged students who presumably would be most adversely affected by such reforms.

While trends in public policy concerning quality and excellence issues grow, so too does the awareness that many of the gains in educational opportunity and attainment made by

Black Americans since 1960 have eroded in the last decade. Since a disproportionate number of minority students come from low-income, high-unemployment areas, there is much speculation that the serious problems of educational access and achievement for black students will likely be exacerbated by these emerging quality policy trends.

The purpose of this research was to explore the impact a new academic standards policy had on different segments of the student body at a large, urban community college. Conceptually, this newly implemented, college-specific policy is not unlike those being proposed on a national scale. The results of this analysis can therefore be used as an indicator of the possible secondary effects of such proposals.

Approach

Since the principles of access and equality upon which community colleges were formed have provided educational access to economically and socially disadvantaged students who would otherwise not have an opportunity to pursue higher education, these schools are able to provide a unique perspective on the operational impact of proposed quality policies on this student group.

The Community College of Philadelphia student body is characterized by many qualities that are indicative of the students who are anticipated to be most affected by these reforms. Half of the students in recent semesters received some type of financial aid to attend the College. Approximately 55% are Black, 5% Hispanic and 6% Asian. Nearly two-thirds (62%) are female. A large percentage (74%) register for the first time several years after completing high school, and nearly half (46%) test at a low reading level. Sixty-two percent (62%) live in city neighborhoods characterized by lower socio-economic factors.

At the end of the 1983-84 academic year, the College's Board of Trustees approved a new statement on academic standards and progress which was substantially more demanding than the policy it replaced. The policy permits a student to be dismissed from the College at the end of two semesters (assuming at least half-time study) if either progress or grades are unsatisfactory. The Spring, 1985 term represented the first semester in which the total impact of the policy could be observed. (Technically some part-time students have still not completed enough credits to be impacted by the policy, but these numbers are not great.) This study describes the characteristics of all students enrolled in the Spring, 1985 term.

There were 11,046 students enrolled in credit courses on-campus in the Spring, 1985 term. (Off-campus students were not included in this analyses because the number of students graduating or being dropped is minimal.)

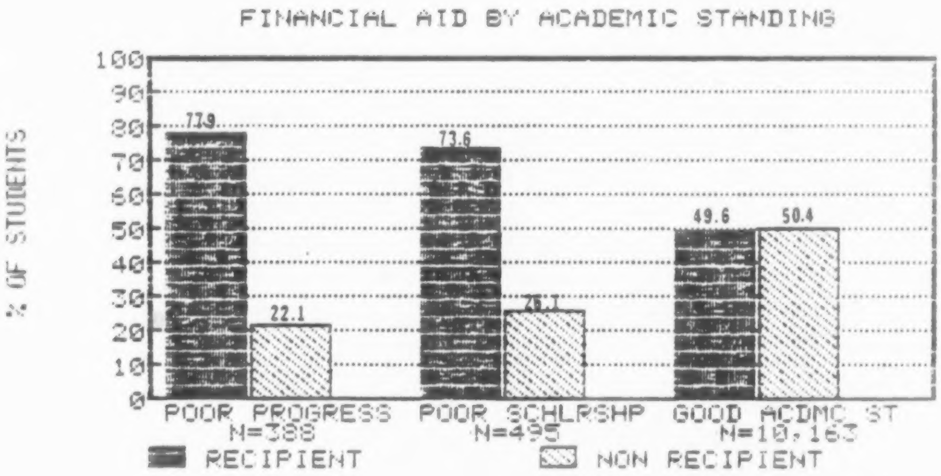
Of the 11,046 students, 883 (8%) were dropped due to the new academic standards policy, 388 because of poor progress and 495 due to poor scholarship.

This study breaks out students into three groups--poor progress, poor scholarship and good academic standing--and compares them along several dimensions including financial aid status, race, sex, age, reading ability and socio-economic status.

Results

Figure 1 shows the breakdown of students dropped for poor scholarship and poor progress by financial aid status.

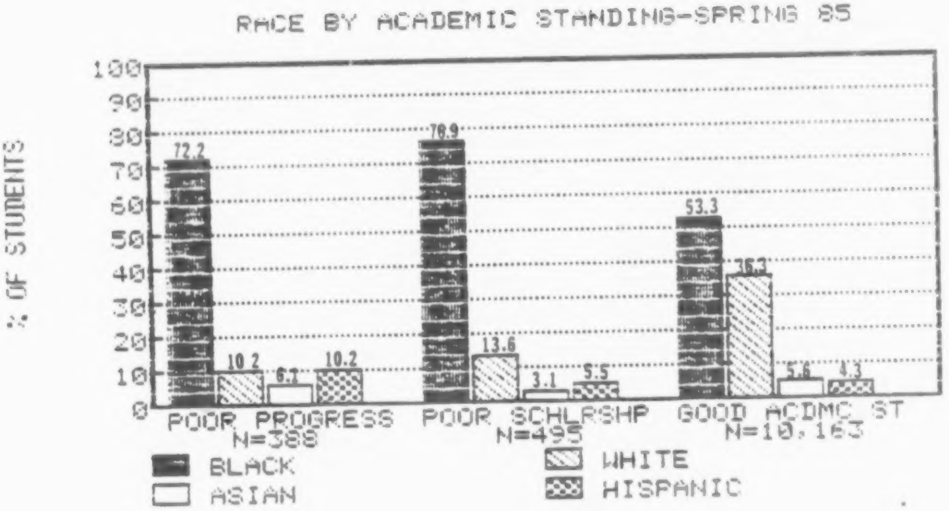
FIGURE 1



Students on financial aid were more likely to encounter academic difficulty, with poor progress being a slightly greater possibility than poor scholarship. The less satisfactory performance of financial aid recipients may reflect the likelihood that receipt of financial aid is associated with other lifestyle circumstances that characteristically result in high-risk students.

Figure 2 shows the distribution of students dropped for poor scholarship or insufficient progress by race category.

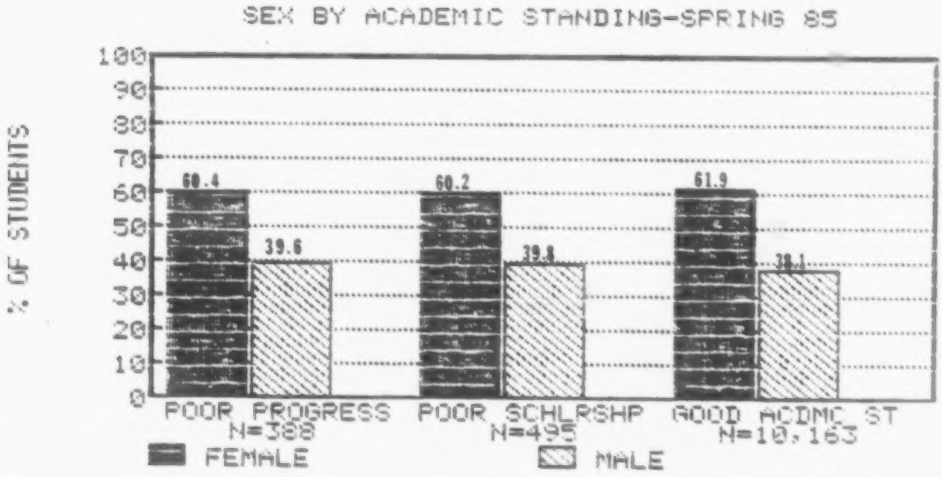
FIGURE 2



Black students were over-represented in the two poor academic standing categories, while White students were under-represented in both categories. Asian students were slightly over-represented in the poor progress category but were under-represented in the poor scholarship category. Hispanic students were most over-represented in the poor scholarship category.

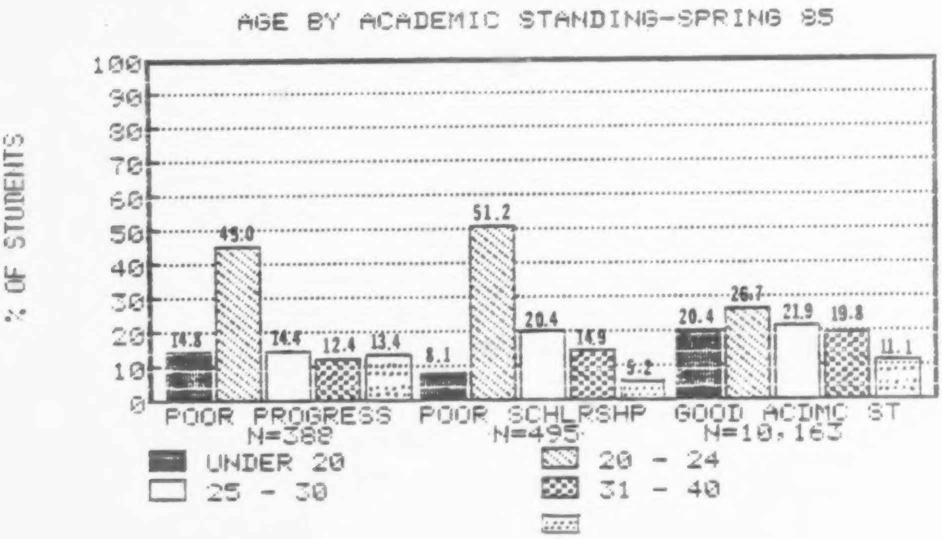
Figure 3 indicates there were no sharp differences in the performance of males and females; however, female students were slightly less likely than males to encounter academic difficulties.

FIGURE 3



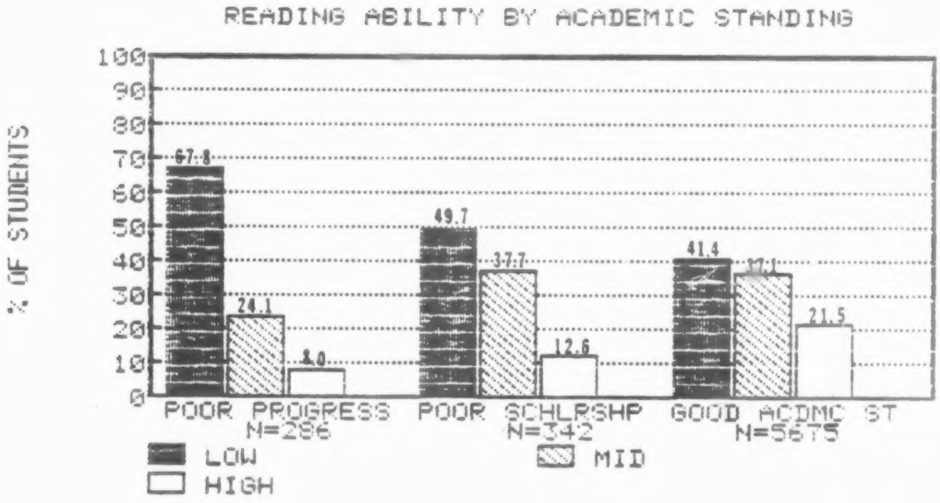
Older students (over 30) were generally less likely to encounter academic problems, with the exception of the over 40 students, who withdrew from a large number of courses and therefore encountered progress problems (Figure 4). The traditional-aged students (under 20) were also significantly under-represented. The group experiencing the most difficulty were those in the 20-24 age category. In part, this reflects the fact that younger students have not been at the College sufficiently long to get into academic difficulty. It also reflects the characteristics of high-risk students who turn to community colleges in their early 20's after significant periods of unemployment and lack of success in the job market.

FIGURE 4



Sixty-eight percent of the poor scholarship and 50% of the poor progress students had low reading scores (Figure 5). Less than 13% of the poor scholarship students had high reading scores. The total number of students in each group is less than in the other figures because of missing information due to students who were not tested.

FIGURE 5



As shown in Figure 6, students from lower socio-economic neighborhoods were much more likely than students from either middle or upper SES areas to experience academic difficulties, due to either poor progress or poor scholarship.

FIGURE 6

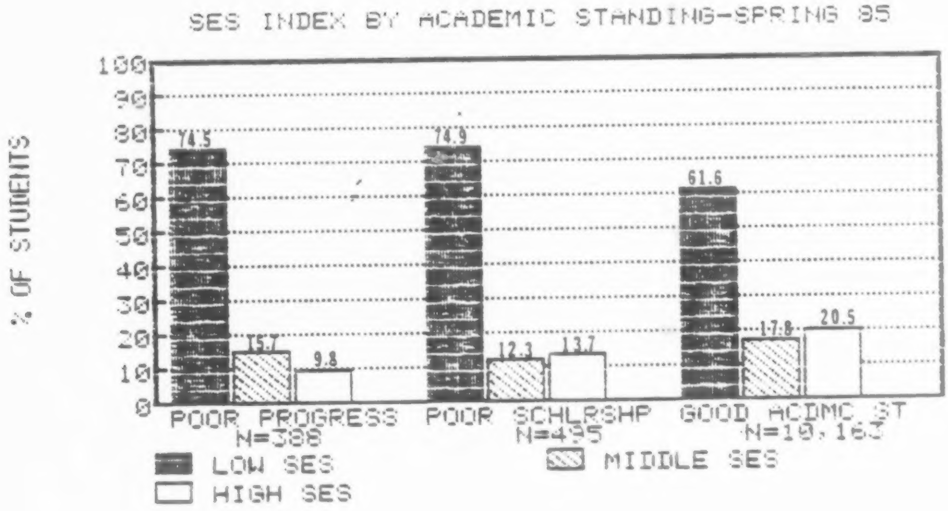


Table 1 contains results of Chi-square tests which were used to test for significant differences between the three student groups with regard to the variables included in Figures 1 through 6. With the exception of sex, the test results indicate that all group differences are highly significant.

Table 1

Analysis of Significant Differences in Student Academic Status by Student Characteristics

	Student Academic Status			
Factor	Poor Progress	Poor Scholarship	Good Academic Standing	X^2
Financial Aid Status				
Recipient	77.9%	73.6%	49.6%	253.309***
Non-recipient	22.1	26.1	50.4	
Race				
Black	72.2	76.9	53.3	218.523***
White	10.2	13.6	36.3	
Asian	6.1	3.1	5.6	
Hispanic	10.2	5.5	4.3	
Sex				
Female	60.4	60.2	61.9	0.950
Male	39.6	39.8	38.1	
Age				
Under 20	14.8	8.1	20.4	74.906***
20-24	45.0	51.2	26.7	
25-30	14.4	20.4	21.9	
31-40	12.4	5.2	11.1	
Reading Ability				
Low	67.8	49.7	41.4	95.56***
Middle	24.1	37.7	37.1	
High	8.0	12.6	21.5	
SES				
Lower	74.5	74.9	61.6	60.964***
Middle	15.7	12.3	17.8	
Upper	9.8	13.7	20.5	

* $p<.05$
** $p<.01$
*** $p<.001$

Discussion

Higher education institutions are being asked to take on a schizophrenic style in trying to be responsive to external pressures. On one hand, concern about quality is pushing policy makers to raise academic standards--a decision which, in the College's experience, has a demonstrated negative effect on retention among educationally and economically disadvantaged students.

On the other hand, there is growing public concern that minority students, who disproportionately come from low-income, high-unemployment areas, remain under-represented in the educational milieu.

In order to insure that responses to one issue are not at the expense of another, educators and policy makers who are concerned about equality, as well as fundamental excellence, must find better ways of serving the nation's disadvantaged students and discovering effective new ways of providing support services for these students.

The type of analysis that has been reported in this paper was completed after the fact, even though a simulation study could have easily been designed to measure policy effects prior to implementation. The College realizes the short-sighted approach that was taken in planning the new standards policy and in the future plans to be more sensitive to secondary impacts. Based on the results of this study, a

College-wide effort has been made to better serve student groups who have proven least likely to succeed under the guidelines of the new policy. This effort includes a holistic student assessment to identify entering students' needs for special support, as well as an enhanced counseling effort and thoughtful program placement.

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AN INTEGRATED LONGITUDINAL APPROACH TO THE STUDY OF STUDENT OUTCOMES

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Introduction

During the late 1970's and early 1980's, many institutions of higher education witnessed either a decline or steady state in their enrollments (Clowes et al, 1986). In many cases, this lead to a proportionate decrease in the amount of available institutional financial resources (Hearn and Longanecker, 1985). While there were and are several factors for this scenario, the most recognized has been the substantial decrease in the traditional student population pool (Peterson, 1984). In order to meet the challenge of this decline, many institutions have or are entering into a highly competitive consumer oriented marketing environment (Alpert, 1985). In turn, this environment has forced institutions into comprehensive and on-going processes of self-study (Cope, 1985). While the self-study can have many functions, it mainly serves to identify institutional weaknesses while promoting institutional strengths (Ewell, 1983).

There is extensive literature on the concept of student outcomes (Miller, 1980). However, it has only been in recent years that it has become an important component in the self-study process. The results of research on student outcomes can provide appropriate feedback (if effectively utilized), to enhance the quality of offerred institutional services and thereby the marketing process (Astin, 1979). The purpose of this paper is to describe a methodology for an integrated longitudinal approach to the study of student outcomes in a rural community college setting.

Development of Model-Approach

The methodology for this integrated longitudinal study is planned to extend over a 2½ year period (1986-1988) and incorporates 4 phases.

Phase I (Spring 1986)

In the first phase, a college-wide committee composed of appropriate constituency representatives was formed. The committee had four objectives. The first objective centered on defining the concept of student outcomes. A compromise definition evolved which focused on the key tenets of the college mission statement. These tenets included the pursuit of knowledge, achievement of vocational interests, progress toward personal well-being and development, and overall perceptions of college academic and non-academic services. The second objective examined the potential for a comprehensive study on the aforementioned definition of student outcomes. After considerable discussion, consensus was reached on the necessity of such a study. Two possible approaches were reviewed. The first called for a massive survey of all presently matriculated students to ascertain their perceptions on specified concepts with a follow-up survey on appropriate graduates. The second approach called for a select population to be surveyed over a two year period which included an intervention process and a follow-up graduate survey. Due to limited resources and time constraints, the second approach was adopted. The third objective concentrated on defining the population and the procedures to be followed. It was agreed that no more than approximately 150 matriculated students at the main college campus would be surveyed over the period of the study with three questionnaires (possibly a fourth intervention questionnaire), in addition to a college academic placement test. The final objective focused on the make-up of the questionnaires. The questionnaire construction was assigned to the institutional research office in conjunction with appropriate constituency representatives.

Phase II (Fall to Summer 1986-87)

The second phase of the methodology (part of which is presently underway) consists of two objectives. The first evolves around questionnaire planning and construction. Several questionnaires and one placement test are planned for utilization. The initial questionnaire involves a marketing research component and a college expectation outcome goal component. Essentially, appropriate students will be surveyed to ascertain what features attracted them to choose this institution for their post-secondary education and what outcomes they expect to achieve while enrolled. Concurrently, these students will be administered college academic placement tests to ascertain if remedial courses are required. The second questionnaire involves a modified outcome goal expectation intervention survey. It will be administered on a semester basis to evaluate progress on outcome goals. The third questionnaire is composed of three components: first, a graduate employment survey; second, a graduate satisfaction survey of college services; and third, a final goal outcome survey. These questionnaires will be administered during the final phase of the study.

The second objective involves the organizational details of defining the sample population and delineating procedures for questionnaire administration. Presently, it is intended to survey all new first-time, full-time, accepted, deposit paid students during summer college pre-registration meetings when academic placement tests are normally administered. While the entire population will be administered a marketing questionnaire, only students in associate degree programs will be administered an outcome goal expectation questionnaire. This will allow ample time to score the questionnaires and create appropriate computer files for tracking and analysis purposes. Thus, marketing and outcome data will be available for additional studies on the majority of the entering freshmen class.

Phase III (Fall to Spring 1987-89)

Phase three of the methodology will commence during the Fall 1987 semester. It is planned to continue on a semester basis through the Spring 1989. Pending the size and composition of the entering class, it is anticipated that a 40 to 50% sex by alpha random sample of students in associate degree programs will constitute the study population (not to exceed 150 students). The sample will then be evenly divided into control and non-control groups based upon sex and academic placement scores. However, the control group will be given both abbreviated subjective interviews and objective surveys to analyze their semester progress on outcome goals and perceptions of related college services. Both groups will be tracked and compared on a number of variables such as GPA, attrition/retention rates, and ultimately on their perceptions of outcome goals and related college services. Thus, data will be available for a sub-study to ascertain what if any effect the intervention has on specified variables. (See Figure 1 for the planned file layout).

Phase IV (Summer to Fall 1989)

Phase four will be the final phase of the methodology. It will focus on those students from the original entering class who have completed their graduation requirements. Initially, all graduates will receive a placement questionnaire and a college services satisfaction questionnaire. In addition, those graduates in the sample population will receive a modified college outcome goal questionnaire. Appropriate statistical procedures will be utilized to analyze the data for a variety of pertinent study questions. For example, are there significant relationships between:

A. marketing scores and outcome goals?

B. high school GPA and outcome goals?

C. sex and outcome goals?

D. college GPA and outcome goals?

E. expectation outcome goals and achieved outcome goals?

F. attrition and/or persistence and outcome goals?

G. college service satisfaction and outcome goals?

H. sex and outcome goals?

In addition, a number of secondary questions will be analyzed utilizing the appropriate elements as described in figure 1 of the study file layout. Finally, a secondary investigation will take place to ascertain what, if any, effect the intervention process has on a number of appropriately designated variables.

Significance-Conclusions

There is extensive literature available on the subject of student outcomes. However, there are few integrated longitudinal studies conducted in general and even fewer conducted in rural community college settings in particular. This integrated longitudinal investigation is being conducted as one facet of an institutional self-study.

The methodology developed for this study will track a select sample of associate degree students over a two-year period. The study will incorporate four phases. One phase will focus on an intervention process involving a control group. Data will be generated for a sub-study to ascertain what effect the intervention has on a number of select

Figure I

Intended Study File Layout

```
RECORD     SS #          LAST NAME   FI   MI   CAMPUS   SEX   BIRTH YEAR   COUNTY   HS CODE
***        ***********   *********   *    *    *        *     **           *        **


HS GPA     ---------------------------- MARKET SCORES ----------------------------   CONTROL   ATTRITE   OUTCOME EXPECTATION GOALS
***        Location   Academics   Activities   Fin Aid   Admissions                   *         ****      **  **  **  **
           **         **          **           **        **


CUM GPA    INTERMEDIATE OUTCOME GOALS    INITIAL SATISFACTION SCORES    GRADUATE    FINAL OUTCOME GOALS
***        **  **  **  **                **  **  **                     ***         **  **  **  **


FINAL SATISFACTION SCORES
**  **  **
```

variables.

The study is expected to provide important data on the quality of several institutional areas of concern. Output of the study will be utilized to strengthen the college marketing process, redirect and/or improve specific college services, reorganize the college advisement system, give direction to the remediation program, revitalize academic majors and courses, and provide important information on student characteristics which will benefit the college and its constituencies.

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A STUDY OF THE FALL 1980 ENTERING COHORT

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This study was unique for Mercer because it was the first time we conducted a study on an entering group of students as opposed to an exiting group such as non-returning students or graduates. It was initiated to give us an insight into our entering students and what happened to them after their introduction to college.

The entering full-time students of fall 1980 were chosen due to the increase in the number of new students to enter that semester over the previous years. The challenge was to find out what happened to each student (100% tracking and contact).

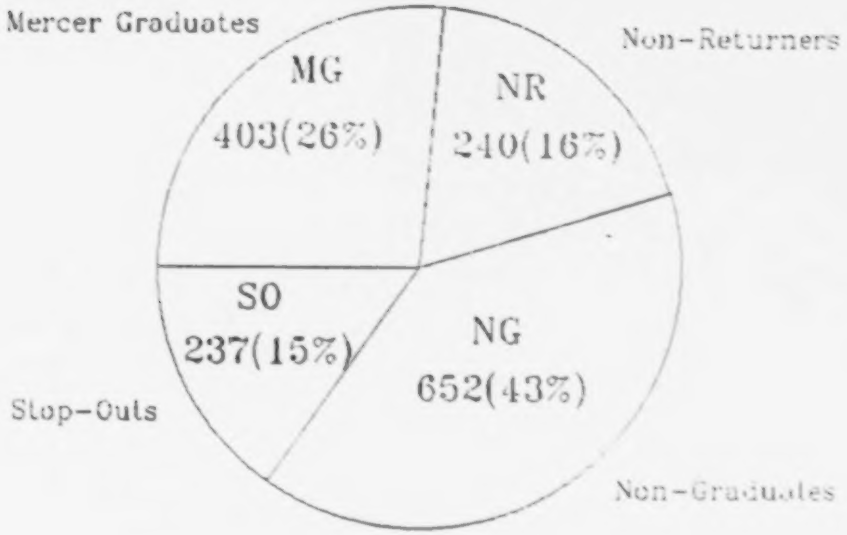
The study was started in fall 1983. Preliminary work included time lines for the study and personnel and other resources required to complete the full study.

The first data were collected in spring 1984 giving the students three academic years to go through Mercer. The students were identified from the data base and their attendance pattern and enrollment status as of the end of the spring 1984 semester were added to a master tape and analyzed through SPSS. These data included attendance by semester.

program of study, graduation status, cumulative credits earned and grade point averages as well as traditional demographic data such as sex, ethnicity, age, residence and high school attended.

Reviewing these data lead to the identification of four subgroups. The first of these subgroups to be identified was the graduates, referred to as Mercer graduates or MG. The second group was students who attended the fall 1980 semester only and had not attended Mercer since, referred to as non-returners or NR. The remaining students were not so easily divided yet they represented 58% of the total population. The students that remained could have been still pursuing their education at Mercer as of the end of the spring 1984 semester or could have dropped out at any time after the end of the first year. That information would not be known until after we surveyed these students. Their pattern of attendance emerged as the factor which divided the group, those who attended continuously and those who attended intermittently within that three year period. These two groups are referred to as non-graduates, NG, and stop-outs, SO, respectively. Figure 1 shows the distribution of these subgroups.

The next segment of the study was to find out what happened to these students and why. Having four distinct subgroups, four survey instruments were developed. Many of the questions were common to all four questionnaires while others were unique to one or two groups. (See the questions



N = 1532

Figure 1. Distribution of Sub-Groups

listed at the end of this paper.) Three full mailings and a telephone follow-up were conducted during the summer and fall 1984.

Results

All data from the student data base were crosstabulated by subgroups to show patterns and verify obvious suspicions felt by the faculty and administration that set one group of students apart from the others. This was done while the surveys were being collected. The demographic data of the entire population show an even distribution of male/female and an ethnic breakdown of 73% White, 17% Black, 4% Hispanic and 6% other or unknown. Differences across the subgroups with respect to the initial data can be seen on Table 1.

Table 1
Background Data by Subgroup

	Entire Population	MG	NR	NG	SC
Total Number	1532	403	240	652	237
Sex					
Male	50%	44%	52%	50%	56%
Female	49%	56%	46%	48%	43%
Unknown	1%	--	2%	2%	--
Ethnicity					
White	73%	85%	66%	69%	70%
Black	17%	9%	22%	19%	20%
Hispanic	4%	2%	4%	5%	4%
Other & Unknown	6%	4%	8%	7%	6%
Residence					
In-County	71%	65%	66%	73%	85%
Out-of-County	29%	35%	34%	27%	15%
Cumulative Credits Earned					
0-12	25%	0%	83%	19%	29%
13-24	17%	0%	11%	26%	24%
25-36	12%	2%	5%	21%	12%
37-48	8%	1%	1%	13%	14%
49-60	9%	4%	0%	14%	11%
61-72	21%	64%	-	5%	8%
73 and up	8%	29%	-	1%	2%
Quality Point Average					
0.00-1.99	30%	1%	61%	30%	52%
2.00-2.49	26%	24%	13%	33%	25%
2.50-2.99	22%	34%	10%	21%	16%
3.00-3.49	14%	26%	7%	11%	5%
3.50-4.00	8%	15%	8%	5%	2%
Basic Skills Enrollment (in First semester)					
None	66%	80%	63%	60%	64%
1 or More	34%	20%	37%	40%	36%

The subgroup breakdown by program of study indicate some programs with a far greater representation of the graduates. These programs, for the most part, include a few transfer programs, allied health career programs and a few engineering career programs. Programs in which non-returners were over represented included the undeclared majors, non-degree seeking and general studies programs. These programs and a few other programs, many business career programs, were over represented among the non-graduates, while stop-outs were scattered across many different career and transfer programs.

In spring 1985, the completed surveys were coded, keypunched and results tabulated. Questionnaires were returned by 41% of the population. The best response rate came from Mercer graduates (58%) while the other subgroups had response rates of 32%, non-returners, 35%, non-graduates and 36%, stop-outs (see Table 2.)

Table 2
Response Rates for Surveys Administered by Subgroup

	Entire Population	MG	NR	NG	SO
Population Size	1532	403	240	652	237
Not Accessible[a]	17%	5%	34%	20%	14%
Completed Surveys	41%	58%	32%	35%	36%
Non-respondents	42%	36%	33%	45%	50%

[a] Includes bad addresses/phone numbers and deaths.

The survey respondents' demographic data were compared to the demographic breakdown of the respective subgroups. The survey respondents were found to be representative of each subgroup with respect to sex; however, survey bias was introduced by way of a low black and Hispanic response. Also, non-graduates with more cumulative credits earned responded better while stop-outs with fewer cumulative credits earned responded better.

The responses to the questionnaires are listed with the questions at the end of this report. The most noteworthy are the responses to the question of whether the student intended to complete a degree or certificate program. One out of every five non-returners and non-graduates had no intention of earning a degree or certificate while almost all the stop-outs did intend to graduate. The stop-outs also indicated they were still attending Mercer and will continue at Mercer in the future, whereas, non-returners and non-graduates were less likely to return in the future.

More than half the non-returners and the non-graduates stated their reasons for not returning were "found a job" or "transferred to another college," while more than half the stop-outs stated "found a job" or "not doing well academically." Again, note that 1 of 4 stop-outs indicated they were still working towards their degree or certificate requirements at Mercer.

The non-returners stood out from the other subgroups when asked if they were employed while attending Mercer: almost half said yes while more than 70% of each of the other three subgroups said they were employed while attending.

Two of every five Mercer graduates and non-graduates attended another college after leaving Mercer, while non-returners were almost as high. The stop-outs were more likely to still be at Mercer and less likely to have transferred to another college.

Summary

What happened to everybody? Twenty-six percent of those who entered fall 1980 graduated by spring 1984. These graduates have either continued their education at another college (42%) or got a job (82%) or both.

Of the 16% who attended Mercer for that one semester only, 37% continued their education elsewhere and 83% indicated they were employed. Thirty percent of these students said they would return to Mercer in the future while another 44% were not sure of their return.

For the most part, the non-graduates were employed (85%), while 41% indicated they transferred to another college. Forty-one percent said they would return-to Mercer in the future while 42% were not sure.

As for the stop-outs, these students were the most likely to be still pursuing their education at Mercer four years after they entered. Sixty-two percent said they would be back at Mercer while another 30% were not sure. Seventy-eight percent were employed and only 17% continued their education elsewhere.

Conclusions

The next study is being started this year for the entering class of 1982-1983, the year of Mercer's largest enrollment. Both full- and part-time entering students will be included in this study, as well as students entering for the first time in the spring. Sampling will be used for surveying rather than the entire population. More attention is being paid to increasing the response rate and to comparing elements related to success, retention and marketing across the subgroups.

Survey Questions

When you first entered Mercer in Fall 1980, what was your main educational goal?

	MG	NR	NG	SO
Improve job skills -	3%	6%	10%	5%
Prepare for first career	60%	53%	53%	58%
Prepare of career change	8%	5%	6%	10%
Complete courses for transfer credit	27%	21%	20%	15%
Take courses for personal interest	2%	3%	3%	4%
Undecided/ didn't know	na	13%	9%	8%

Did you plan to complete an associate degree or certificate program?	NR	NG	SG
Yes, associate degree program	75%	75%	82%
Yes, certificate program	3%	5%	8%
No	22%	20%	11%

How satisfied were you with MCCC in helping you achieve your goal?	MG
Very satisfied	24%
Satisfied	51%
Neutral	15%
Dissatisfied	3%
Very dissatisfied	7%

Why did you decide not to return to Mercer?	NR
Transferred to another college	22%
Discovered college was not for me	15%
Met my educational goal	1%
Found a job	31%
Job responsibilities or work hrs increased	9%
Family responsibilities changed	17%
Not encouraged or supported	9%
Not satisfied with courses/instructors	8%
Not doing well academically	10%
Health or physical problems	5%
Transportation problems	6%
Other reason(s)	15%

Why haven't you graduated from Mercer?	NG	SG
Transferred to another college	26%	7%
Met my educational goal	2%	2%
Found a job	25%	28%
Job responsibilities or work hrs increased	14%	17%
Family responsibilities changed	11%	12%
Not encouraged or supported	10%	14%
Not satisfied with courses/instructors	10%	5%
Not doing well academically	14%	22%
Health or physical problems	4%	6%
Transportation problems	5%	8%
Still working toward to degree/certificate requirements	13%	28%
Courses needed not offered	2%	na
Take some time off	14%	13%
No longer pursuing degree or certificate	6%	6%
Other reason(s)	14%	24%

Where did you do most of your studying?	MG	NR	NG	SO
Living room/family room	11%	12%	10%	16%
Kitchen/dining room	14%	12%	10%	11%
Bedroom	32%	42%	40%	38%
College library	24%	16%	23%	15%
Student Center	5%	8%	8%	10%
At work	6%	1%	3%	2%
Other places	6%	1%	2%	2%
Did not do much studying	2%	8%	4%	7%

According to our records, you have missed a semester or two. Why?	SO
For same reason(s) indicated in above question	71%
I attend Mercer when courses I want/need are offered	1%
I attend when I have the money	5%
I attend when I am employed	3%
I attend when I am unemployed	1%
Other	18%

Do you think you might attend Mercer in the future?	NR	NG	SO
Yes, as full-time student	7%	5%	27%
Yes, as part-time student	23%	35%	35%
No, definitely will not	26%	17%	8%
Not sure	44%	42%	30%

Have you attended another college since leaving Mercer? or since graduating from Mercer?	MG	NR	NG	SO
Yes	42%	37%	41%	17%
No	58%	62%	56%	74%
I am still attending Mercer.	na	na	3%	9%

If you have attended another college since Mercer, please indicate your current status.	MG	NR	NG	SO
Part-time student (< 12 credits)	21%	19%	14%	29%
Full-time student (12 or more credits)	71%	39%	59%	36%
Not currently attending	8%	42%	27%	36%

Please provide the following information about your current (or most recently attended) college.	ALL
Name of College/University	
City, State	
Curriculum/Program	

How many credit hours earned at Mercer were accepted at the college indicated?	ALL
What courses, if any, were not accepted?	ALL
If you know why they were not accepted, please explain.	ALL

Were you employed while attending Mercer?	MG	NR	NG	SO
Yes	83%	49%	76%	72%
No	17%	51%	24%	28%

If yes, approximately how many hours a week did you work?

Are you currently employed?	MG	NR	NG	SO
Yes, full-time (35 or more hrs/wk)	57%	71%	61%	65%
Yes, part-time (fewer than 35 hrs/wk)	26%	12%	24%	13%
No	18%	17%	16%	22%

Please provide the following information about your present job. ALL

Job title
Name of employer
City, State

Please indicate your approximate salary, before taxes, excluding overtime. (Full-time reported.)	MG	NR	NG	SO
Up to $7,499 (up to $144 weekly)	3%	4%	10%	9%
$7,500 to $9,999 ($145 to $192 weekly)	7%	7%	10%	15%
$10,000 to $12,499 ($193 - $240 weekly)	25%	13%	16%	9%
$12,500 to $14,999 ($241 - $288 weekly)	15%	19%	12%	9%
$15,000 to $17,499 ($289 - $336 weekly)	11%	7%	10%	4%
$17,500 to $19,999 ($337 - $384 weekly)	11%	4%	6%	0%
$20,000 to $22,499 ($385 - $432 weekly)	7%	0%	3%	2%
$22,500 to $24,999 ($433 - $480 weekly)	4%	2%	2%	2%
$25,000 and up ($481 and up weekly)	4%	2%	2%	4%
missing data	13%	43%	29%	45%

Is your present job related to the program of study you completed at Mercer?	MG
Yes, directly related	71%
Yes, somewhat related	13%
No. Why not?	16%

Would you recommend Mercer to prospective students?	MG	NR	NG	SO
Yes	97%	96%	92%	98%
No	3%	4%	8%	2%

What advice or suggestions do you have regarding Mercer's educational programs and student services? ALL

SYSTEMATIC ALLOCATION OF FACULTY POSITIONS: A COURSE ANALYSIS MODEL

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INTRODUCTION

During the years of ever-increasing enrollments most colleges and universities had few serious problems concerning allocation and reallocation of faculty positions to academic programs. But with the advent of steady or decreasing enrollments along with continuing inflationary pressures (Breneman, 1981), most institutions of higher education are, or will be, facing increasingly difficult academic staffing decisions. The purpose of this article is to present a model for planning faculty allocations and reallocations which is sensitive both to the realities of economic pressures and to the need for equitable treatment of academic departments, divisions, and schools. The model to be described below was developed within the harsh and often territorial world of a college fiscal committee charged with the task of recommending academic fiscal policy and procedures to a college administration.

Over the course of several years of struggle with defining faculty workloads and recommending faculty position allocations, the following question became the focal point of our committee's efforts: How can faculty allocations be assigned equitably and with least disruption to academic programs given the prevailing reality that enrollments and credit hours generated are usually basic administrative criteria for defining a program's need for faculty? Essentially, we have found single dimensional criteria such as credit hours generated per faculty member are inadequate as a basis for comparing programs and identifying faculty resource needs. Such measures are insensitive to program characteristics, especially in key areas such as necessary differences in teaching methodologies. Yet, we also have found that the typical academic department can overwhelm a committee, Dean, or academic vice-president by detailing the unique characteristics and needs of their program. Also, an administrator who makes decisions based solely upon either the credits generated by or the reported uniqueness of each program will soon find perceived inequity and charges of favoritism developing into a significant morale problem for those departments that believe they are being treated unfairly.

One set of observations which allowed our committee's work to move away from departmental uniqueness towards standardized comparison can be summarized as follows. Most academic departments view their own program as involving uniquely demanding work activities, but when viewed across departments, the unique activities of one department are, in fact, balanced by the different (unique) activities of the other departments. Moreover, all departments (even those offering large classes) value small classes and recognize the importance of individual criticism, one-to-one supervision, and small class interactions for high quality instruction. The tendency, however, is to emphasize the importance of small classes and individual supervision for one's own discipline while minimizing or ignoring that same need in other disciplines.

Thus, we were led to the conclusion that one solution to the faculty allocation problem is the development of institution-wide standards which apply to the types of courses taught in each program. This approach allows the institution to move away from the over-simplified, unidimensional, "credit-hours per faculty" criterion while also avoiding the problems involved in treating departments as wholly unique. Each institution, of course, should include as many course categories as are needed to summarize major and essential differences in its programs. The model to be described generates data which, when summed across categories, may be used as a measure of the expected total credit hours for the department given the types of courses taught in what proportions by that department. In effect, the model tackles the "How do you compare apples and oranges?" problem by establishing a standard apple (e.g., lecture-discussion), establishing a standard orange (e.g., lecture-lab), etc., and then using the combination of these standard categories as a means of comparing academic "fruit-baskets" (programs, departments, or schools).

DESCRIPTION OF PROCEDURES

As you examine the procedures of this model, it is essential that you keep in mind that the "course categories" and the credit-hour standards for each category are best developed by consensus and must reflect the realities which exist at each institution. The example presented probably fits best the middle-sized institution granting Bachelor's and Master's degrees.

The course categories we developed included the major differences in teaching methods which exist in our institution's academic program. These categories and our current credit hour standards for each category are presented below.

A. Lecture and Lecture-Discussion Courses. All courses taught in the traditional lecture or lecture-discussion mode. Includes all courses other than those which clearly belong in one of the categories below. Expected Credit Hour

Generation = 80 credit hours per course section of this type. (This is equivalent to slightly over 26 students per section in a three credit course.)

B. Courses which combine lecture-discussion with significant requirements for *Individual Supervision*, such as research methods courses. Expected = 60 credit hours per section (i.e., 20 students per three credit course).

C. Courses with a significant *Perceptual-Motor Skills* component e.g., art studio courses, physical education courses, courses in voice and instrument training. Does not include individually-supervised courses. Expected = 55 credit hours per section (i.e., > 18 students per three credit course).

D. Courses combining lecture and scheduled Laboratory activities. Expected = 50 credit hours per section (i.e., > 16 per three credit course or > 12 per four credit course).

E. Senior-level *Seminars* and graduate courses--not including individually supervised courses or internships. Expected = 40 credit hours per section (i.e., > 13 students per three credit course).

F. Undergraduate *Internships*. All supervised professional and paraprofessional undergraduate internship experiences. Expected = 45 credit hours per section (i.e., > 5 students per nine credit internship).

G. *One-on-One Supervised Learning* courses. Includes independent study, readings, private music lessons, graduate internships, etc. Expected = 30 credit hours (i.e., 10 students per three credit offering).

Department heads were given the course categories and their defining characteristics and were asked to place all courses in their curriculum in the appropriate category. Initially the standards for credit hours for each category were not available to the heads since it was judged that the categorization process would be less biased if done without knowledge of the category credit hour standards. A few department heads miscategorized some of their courses, and these courses were re-categorized following subsequent discussions.

Course and credit hour data for each department are processed through the following steps:

1. Record the number of three credit (equivalents) sections which fall within each category;
2. Multiply the proportion of offerings in each category by the total number of sections (three-credit) expected for a department with that number of faculty;
3. Multiply the resulting proportionate number of sections in each course category by the credit hour standards for that course category;
4. Total the expected credit hours across the categories to arrive at an overall expected credit hours for each department;
5. For each department, compare the resulting expected credit hour total with the actual credit hours produced.

For example, we chose to calculate a ratio between actual and expected credit hours. Thus, our ratios above 1.00 indicate the extent to which a department is teaching more credit hours than expected, and ratios below 1.00 indicate the degree to which a department is falling below standard. This ratio is used to estimate the degree of departmental over-staffing or under-staffing.

A departmental worksheet for the above procedures (simplified for the purposes of brevity) is presented below.

DEPARTMENT: Psychology FACULTY POSITIONS: 9

Course Categories	A	B	C	D	E	F	G	TOTAL
Number Sections Offered (3-Credit Equivalent)	16	2	--	8	8	2	4	40
Proportion of Offerings	.40	.05	--	.20	.20	.05	.10	1
Total Sections (3-Credit) Expected for 9 Faculty	14.4	1.8	--	7.2	7.2	1.8	3.6	36
Standard Credit Hours	80	60	55	50	40	45	30	--
Expected Credit Hours	1,152	108	--	360	288	81	108	2,097
Actual Credit Hours	1,464	102	--	312	282	75	100	2,335

$$\text{Actual-to-Expected Ratio} = \frac{2,335}{2,097} = \underline{1.11}$$

In the above example, a department of nine faculty actually offered more courses than expected by the college (12 credit hours per faculty member). The procedure adjusts for such differences across departments by placing the department on a scale which reflects the college's expected total course offerings for their total number of faculty.

Once the departments' expected credit hours per faculty position has been established through the above procedures, the semester by semester or year by year reports can be generated by simply adjusting for number of faculty positions held by the department and by entering the current semester's (or year's) actual credit hours. We have now programmed the generation of these reports through a Visi-Calc type entry and computation system. A segment of the resulting report from our Spring, 1986 data is presented below.

FACULTY WORKLOAD ANALYSIS--SPRING 1986

	Faculty Positions Held	Expected Credit Hours/ Position	Expected Credit Hours	Actual Credit Hours	Ratio	Faculty Positions Expected
Foreign Langs						
Full Time	6.000	233	1398	962.00	0.688	4.129
PT+Overload	0.667	233	155	140.00	0.901	0.601
Combined	6.667	233	1553	1102.00	0.709	4.730
Geography						
Full Time	7.000	269	1883	1976.00	1.049	7.346
PT+Overload	0.000	269	0	0.00	0.000	0.000
Combined	7.000	269	1883	1976.00	1.049	7.346
History						
Full Time	6.000	293	1758	1292.40	0.735	4.411
PT+Overload	0.250	293	73	6.00	0.082	0.020
Combined	6.250	293	1831	1298.40	0.709	4.431
HPER						
Full Time	18.000	246	4428	2249.00	0.508	9.142
PT+Overload	1.667	246	410	328.00	0.800	1.333
Combined	19.667	246	4838	2577.00	0.533	10.476

FACULTY WORKLOAD ANALYSIS--SPRING 1986
(continued)

	Faculty Positions Held	Expected Credit Hours/ Position	Expected Credit Hours	Actual Credit Hours	Ratio	Faculty Positions Expected
Management						
Full Time	7.840	157	1231	918.00	0.746	5.847
PT+Overload	3.000	157	471	474.00	1.006	3.019
Combined	10.840	157	1702	1392.00	0.818	8.866
Mathematics						
Full Time	11.000	272	2992	3246.00	1.085	11.934
PT+Overload	1.250	272	340	237.00	0.697	0.871
Combined	12.250	272	3332	3483.00	1.045	12.805
Music						
Full Time	8.000	231	1848	1066.00	0.577	4.615
PT+Overload	1.417	231	327	88.00	0.269	0.381
Combined	9.417	231	2175	1154.00	0.531	4.996
Philosophy						
Full Time	4.000	320	1280	1182.00	0.923	3.694
PT+Overload	0.000	320	0	0.00	0.000	0.000
Combined	4.000	320	1280	1182.00	0.923	3.694
Physics						
Full Time	5.000	236	1180	1466.00	1.242	6.212
PT+Overload	0.000	236	0	0.00	0.000	0.000
Combined	5.000	236	1180	1466.00	1.242	6.212
Political Science						
Full Time	4.000	258	1032	1431.00	1.387	5.547
PT+Overload	0.000	258	0	0.00	0.000	0.000
Combined	4.000	258	1032	1431.00	1.387	5.547
Psychology						
Full Time	9.000	229	2061	2179.00	1.057	9.515
PT+Overload	0.250	229	57	90.00	1.572	0.393
Combined	9.250	229	2118	2269.00	1.071	9.908
Sociology						
Full Time	6.000	252	1512	1616.00	1.069	6.413
PT+Overload	0.250	252	63	45.00	0.714	0.179
Combined	6.250	252	1575	1661.00	1.055	6.591
Speech						
Full Time	7.000	242	1694	1627.00	0.960	6.723
PT+Overload	0.500	242	121	147.00	1.215	0.607
Combined	7.500	242	1815	1774.00	0.977	7.331

DISCUSSION

Data generated by this model of analysis can be used at all levels of institutional administration. Below are general examples of applications of the model: (1) Department and division heads can monitor expected versus actual credit hours within the course categories to assist in class scheduling and in identifying problems in staffing; (2) School deans, or academic vice-presidents, can use the information as a partial basis for faculty position allocations and reallocations to departments, divisions, or schools; (3) Existing or new programs can be examined through this model with a view towards preparing more accurate staffing cost estimates.

The ratios produced above are the primary data of interest with the type-of-course analysis of department and division productivity. The reader is reminded that the higher the ratio, the greater the department's productivity given the types of courses taught. Either over-staffing or under-productivity can be the cause of a low ratio, and either under-staffing or "over-productivity" can result in high ratios. Note that "over-productivity" is a judgment which is made relative to the institution's values, goals, and priorities. In steady-state or declining enrollment situations, expansion and growth in one program or discipline usually occurs at the expense of others. Further, the less structured the institution's curricular requirements, the more "market-place" values may replace institutional values, if unbridled program expansions are allowed. Also note that departments and divisions can be compared with regard to full-time faculty or total work force (full-time plus part-time, etc.) productivity.

Interestingly, the standards presented in the present model were developed independently of information concerning the total number of faculty positions allocated to the college based on our state's credit hour formula. Yet, the present model generated a total number of faculty positions which was, over six semesters, within -1.2%, +0.2%, +3.0%, +1.1%, -1.3% and +0.8% of the total number generated by the state system's credit hour formula. The degree of similarity in total faculty positions generated by the two systems suggests that: (1) our state formula is a reasonable means of determining overall staffing needs; and (2) the standards set by the present course analysis model generated a fiscally realistic total faculty complement. The individual department data, however, indicated that the course analysis model distributed our faculty differently than would the state formula, and these differences in faculty allocations to departments are all important for faculty perception of equitable treatment of academic programs. Again, the equity stems from the fact that the course analysis system uses similarities in teaching methodology as the basis for setting productivity standards. In contrast, the state system's credit hour formula only distinguishes between lower division, upper division, and graduate level courses in establishing faculty position allocations, thus ignoring other very important differences and similarities among academic programs.

Potential users or developers of this type model should consider the following additional points.

1. The model may be modified and then further developed in several directions other than the one presented. Decisions concerning inclusion or exclusion of part-time, overload, and cross-over faculty will alter the way an academic program's productivity is viewed and evaluated within this system. Multiple views of program productivity are possible

and desirable with this approach. For example, an analysis in which part-time faculty and their credit hours are included, as well as an analysis which excludes these faculty and data, together offer a clearer perspective than either alone.

2. The present model deliberately excludes "release" or "reassigned" time for non-teaching activities (administration, coaching, etc.) from the analysis. This was done because our state system also does not consider "release" or "reassigned" time in determining the total faculty allocation to the institution. Thus, the state-system-generated allocations of faculty and the present model's allocations are placed on a similar base and direct comparisons are made possible. The conclusion above that the state's system is a reasonable means for determining total faculty allocations must be qualified by the understanding that "release" or "reassigned" time for non-teaching activities must be supported through budget allocations other than the credit-hour-generated "instructional" funds.
3. The categorization of courses must not be allowed to develop as a "game" by which program heads outwit the system. An independent body (committee or administrator) must have the authority to monitor and correct abuses in course categorization.
4. Especially during times involving major curricular changes (new course requirements for general education, etc.), it is important to suspend changes in full-time staffing of affected departments, or at least to establish a range of under-staffing and over-staffing within which no faculty changes will be made until the actual effects on the departments are clearly established. One

could, for example, use course analysis ratios of .85 to 1.15 (15% over-staffed to 15% under-staffed) as such a range within which faculty reallocations will not take place. This approach has the advantage of focusing reallocation and allocation efforts upon the more extremely under-staffed and over-staffed programs.

5. In developing the credit hour standards for the various course categories, one should be careful that these standards are neither unrealistically low nor burdensomely high. If the credit hour standards are set too low, the system generates an unrealistically high number of total faculty positions; if set too high, faculty morale problems and other undesirable effects are the result.
6. Note that the present approach assumes that all departments are currently assigning faculty to the various types of courses on the basis of actual academic program needs. That is, that the departmental scheduling of courses, including the numbers of sections offered, etc., largely reflect program needs and enrollment pressures rather than other, less responsible, reasons which sometimes determine class schedules. The procedures described will not suffice if academic departments are being less than responsible in developing their course schedules. That situation may lead to such divisive and difficult issues as the desirability of establishing minimum percentages of courses to be taught in the more efficient modes such as lecture-discussion.
7. It is crucial that the responsible administrator/faculty committee be prepared to invest considerable time and energy in a careful and thorough examination of the "real world" teaching constraints

of each department. These may include such details as numbers of spaces available or crucial equipment on hand for laboratory courses. Realistic standards must reflect teaching methods and teaching environments available.

FINAL COMMENT

A course analysis model has been offered as a valuable but nonetheless partial approach to faculty reallocation in an era of extreme financial pressures. Neither this system nor any other purely quantitative approach can eliminate the need for difficult qualitative judgments about the relative value of academic staff or programs to an institution. To make those judgments effectively, an institution needs to have a clear sense of its identity, its priorities, and its longer range goals.

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DECISION SUPPORT FOR CONTRACT NEGOTIATION
THE CONTEXT AND CONTENT OF A RESOURCE ALLOCATION MODEL

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The involvement of institutional research with the contract negotiation process is a new challenge to an evolving role. In this paper we will discuss the recent contract negotiations at Tompkins Cortland Community College, describe the computer model that was developed by the Office of Institutional Research to support these negotiations, identify various issues that are raised by this form of decision support, and suggest ways in which these issues can be addressed.

I. THE HISTORY OF COLLECTIVE BARGAINING AT TOMPKINS CORTLAND COMMUNITY COLLEGE

A. Adversarial Bargaining

Tompkins Cortland Community College was established in February 1968 and opened for its first class in September of that year. The faculty association was established for the purpose of collective bargaining under the New York State Taylor Law in October 1981. The first collectively bargained agreement was signed in December of 1983 to be effective to September 1, 1982. Adversarial bargaining took place during that period of time engendering a great deal of emotion and low morale.

B. Mutual Gains Bargaining

The second or successor contract was negotiated from October 1985 to September of 1986. The focus of this process was on mutual problem solving in contrast to the more traditional adversarial bargaining and "what have you done for me lately" attitude. The college and association contracted with a trainer/consultant from the Industrial and Labor Relations College at Cornell University to provide the necessary training in Mutual Gains Bargaining.

C. Make-up of the Management Team

The management bargaining team was comprised of four college representatives: The President and the Deans of Administration, Academic Affairs and Student Affairs. In addition, there were representatives from both sponsoring counties and support personnel: Commissioners of Personnel from the two county personnel offices and the Director of Institutional Research. Under Mutual Gains Bargaining the above staff support was available to the entire negotiating group, including the Faculty Association.

II. PROBLEMS CONSIDERED IN THE COLLECTIVE BARGAINING PROCESS

The process of Mutual Gains Bargaining began with management and association identifying the problems that they wanted to address. The set of problems agreed upon by both management and association teams included both basic issues and secondary concerns.

A. Basic Issues

1) Parity with other selected community colleges in New York State by rank was the first basic issue. The bargaining group selected 16 colleges with demographics similar to Tompkins Cortland Community College, and a comparison of average salaries showed that our college was 14th from the top.

2) Parity within the college by rank was the second basic issue identified and agreed to. Various inequities in salary had been identified, and balance was desired. The major cause was found to be the compounding effect of salary compression over the eighteen-year history of the college and the standard operating procedures during that time. Some senior faculty had been disadvantaged financially in comparison with newer faculty.

3) The third basic issue consisted of human rights concerns which were manifest through a statistical analysis of salaries by factors such as gender and religion. This area was of greatest concern on the part of county sponsors due to apparent legal liabilities attached to potential human rights discrimination suits. This item became the central focus of much of the debate.

B. Other Bargaining Issues

Two other bargaining issues were identified and agreed upon: (1) the definition of lay-off units and (2) faculty evaluation. These items have been submitted to committees for review and resolution during the life of the contract.

It should also be noted that the Institutional Research Office will continue to play a significant role in the solving of these additional significant concerns. The description of that role may turn out to be material for another paper.

III THE MODEL

In order to assist the negotiation teams in analysing the many ways in which these problems could be addressed, the Office of Institutional Research was asked to develop a computer-based resource allocation model. Proposals under consideration by the committee were specified in terms of parameters such as (1) the amount of an across-the-board salary increase for each year of a three-year contract, (2) additional dollars allocated to specific individuals in the first year of the contract, and (3) the amount of dollars in an adjustment pool for each year of the contract.

A model was needed to allocate the adjustment pool in a manner that would address the problems of external and internal parity, taking into account both the across-the-board and individual increases. The output of the model was to be a listing of the salaries received by the members of the Faculty Association each year of the contract, together with statistics which would describe the extent to which the problems of external and internal parity and human rights inequities were being addressed.

Basically, the model that was developed addresses the problem of external parity through the allocation of a portion of the adjustment pool to each rank and grade. It addresses the problems of internal parity and human rights inequities through the distribution of that portion of the pool allocated to a rank or grade to the individuals within that rank or grade. The internal structure of the model can best be explained by reference to the 11 tables which were produced as output from each run of the model.

A. Across-the-Board and Adjustment Parameters

Table I describes the settings of these two parameters. Notice that the adjustment pool is described in three rows. The parameter listed as ACTUAL denotes the amount of the pool in actual dollars. Because the parity and human rights issues are analysed in terms of full-time equivalent dollars, the LIMIT parameter is included to describe the pool in full-time equivalent dollars. In running the model, the LIMIT is first set to an approximate value. The model is run, the difference of the ACTUAL value from the intended amount is noted and added to the limit until the ACTUAL and intended amounts converge. The parameter is thus set through a process called "goal-seeking".

The lower portion of Table I describes the allocation of the adjustment pool of full-time equivalent dollars across the ranks and grades of the Faculty Association. The percent of the pool (and thus the portion of the pool) allocated to each rank and grade is determined through a process that addresses the issue of external parity. This process is described in tables II-IV.

B. Differences between TC3 and 16CC Average Salaries

Table II describes the difference between the average salaries at TC3 and the median average salary at the other 16 community colleges. Because data were only available on current salaries, average salaries at the other 16 colleges were assumed to increase by the same rate that they had increased this year over last. Also, because data were not available on the average salaries of teaching assistants and technical assistants, average salaries for these grades were estimated from the data on the ranks. These data and estimates are described in Table IV.

C. Dollars Needed to Reach the 16 College Medians

In Table III the dollars needed to raise the TC3 averages to the 16 college medians are determined by multiplying the difference between average and median salaries by the number of people in each rank and grade. The percent of the total dollars needed that is represented by the dollars needed by each rank and grade is used above in Table I to determine the percent of the adjustment pool allocated to each of those ranks and grades. In this way, the average salaries of people in these ranks and grades will converge upon the average salaries at the 16 other community colleges at a rate proportional to the distance between these averages.

D. Target Starting Salaries & Increments

Having addressed the problem of external parity through the allocation of adjustment dollars to ranks and grades, the problems of internal parity and human rights inequities are addressed through the distribution of those adjustment dollars to the individuals within each rank and grade.

The negotiation teams agreed, after much analysis and debate, that three factors should be used to determine the target salary for each individual in a rank or grade: (1) placement at hire, (2) years of service and (3) years in rank. The latter two factors were prorated by FTE, and the three factors were given equal weight as they were combined into an index. This index was then used to determine the number of times a target starting salary was to be increased at a compounded rate. The target starting salary for each rank and grade and the standard rate of increase were also incorporated into the model as parameters, as described in Table VII.

E. Individual Salary Adjustments and Totals

The distribution of the adjustment dollars allocated to each rank and grade is now determined by finding the difference between each individual's full-time equivalent salary (after the across-the-board and human rights increases) and that individual's target salary. If the target is equal to or less than that individual's salary, that individual needs no adjustment to reach the target. The dollars needed by each individual to reach that individual's target are described as a percent of the total dollars needed by the individuals in that rank or grade, and those percentages are used to distribute the adjustment dollars to the individuals in that rank or grade, as described in Table VIII. Tables IX and X (not shown here) describe the same process for the second and third year of the contract.

F. Results

Tables V and VI describe the resulting average salaries for each rank and grade and the resulting salary adjustments made to each rank and grade in actual dollars. More important, however, is Table XI, which describes the impact of the current set of parameters on external parity.

The impact of the current parameters upon internal parity is described graphically in Figure 1, which depicts the relation for one of the ranks, between hypothetical salaries and indices for individuals in that rank over three years of the contract.

The impact of the parameters of any run of the model upon the human rights inequities was analysed by means of a multiple regression resulting in statistics such as those described in Table XII.

IV. CONCERNS AND CONCLUSIONS

A. Implications for Institutional Researchers

There are several implications that can be drawn from our experience at Tompkins Cortland Community College regarding the usefulness of an interactive, computer-based resource allocation model and the role of institutional research in the contract negotiation process:

1) A computer-based model such as the one described here can be very useful in exploring the precise impact of numerous interacting assumptions. The process of manipulating such a model can assist a negotiation group in understanding the sometimes counter-intuitive effects of various combinations of parameters.

2) A computer-based model model will involve the developer in both the implementation of the model and the interpretation of the results. For the most effective use of such a model and to assist with interpretation, it is necessary to have one or more computer users or mathematicians in the negotiation group.

3) To explain the usefulness of such a model as well as to describe how it works and what the results mean, it will be necessary to translate all technical terms into non-technical language that can be understood by someone not familiar with statistics or computers. This is not an easy task.

4) Practical and political considerations will often weigh more heavily than scientific ones. Nevertheless, the researcher must keep the bargaining committee informed of the strengths and weaknesses of alternative approaches, remain as objective as

possible, and work through the chief negotiator at all times.

B. Political Implications

1) While a computer model may facilitate compromise, the complexity of such a model may make it difficult for members of the bargaining group to sell the resulting agreement to their constituencies. Politicians may therefore question its viability.

2) The precision with which results can be described may result in a larger settlement than would otherwise be the case, which in turn may put the entire college budget in jeopardy.

3) Conflicts on major issues may be such that no model can resolve them, although manipulation of the model may help to clarify this fact.

C. LEGAL IMPLICATIONS

1) Individuals can still file suit against the college for human rights violations, although the settlement may reduce the contingent liability related to such issues.

2) It may be that reducing or solving some problems, especially if approached directly, will create new ones.

A01578

TABLE I. ACROSS-THE-BOARD AND ADJUSTMENT PARAMETERS

	1986-87	1986-87	1987-88	1987-88	1988-89	1988-89
ATB % =	1.06		1.06		1.06	
ADJST % =	0	0	0	0	0	0
LIMIT =	61792		61726		61632	
NEEDED =	61792		61726		61632	
ACTUAL =	60000		60000		60000	

RANK	% POOL	PRTN POOL	% POOL	PRTN POOL	% POOL	PRTN POOL
PROFESSOR	23.28	14384	24.19	14930	24.55	15132
ASSOCIATE	47.08	29093	48.14	29715	49.57	30551
ASSISTANT	11.27	6961	9.72	6002	9.28	5719
INSTRUCTR	10.35	6394	9.96	6145	8.98	5537
TA III	5.08	3137	4.93	3044	4.51	2781
TA II	1.84	1134	1.91	1177	1.93	1191
TA I	1.11	687	1.16	713	1.17	722
TOTAL	100.00	61792	100.00	61726	100	61632

TABLE IV. 8TH CC SALARY AVERAGES BY RANK

	84-85 8TH CC AV	85-86 8TH CC AV	86-87 + 6.1%	87-88 + 6.1%	88-89 + 6.1%
PROFESSOR	32107	33331	35364	37521	39810
ASSOCIATE	27437	28132	29848	31669	33601
ASSISTANT	21192	21926	23263	24683	26188
INSTRUCTR	18107	19032	20193	21425	22732
TA III		19124	20291	21528	22842
TA II		16029	17007	18044	19145
TA I		14560	15448	16390	17390

NOTES

1. FIRST FOUR RANK VALUES ARE THE 8TH (OF 16) AVERAGE SALARY.
2. TA VALUES ESTIMATED BY USING THE AVERAGE FOR THE 4 FACULTY RANKS OF THE DIFFERENCE BETWEEN THE ADJ. 85-86 TCCC SALARY AVERAGE AND THE 1985-86 16CC SALARY AVERAGES EXPRESSED AS A % OF THE ADJ. TCCC 1985 AVES FOR TA GRADES.

TABLE II. DIFFERENCES BETWEEN TC3 & 16 CC 1-FTE
AVERAGES AFTER A TC3 ACROSS-THE-BOARD INCREASE

RANK	86-87	87-88	88-89	# FACULTY
PROFESSOR	2671	2065	1393	19
ASSOCIATE	5403	4109	2813	19
ASSISTANT	1365	876	556	18
INSTRUCTO	1254	897	538	18
TA III	1582	1142	695	7
TA II	1334	1031	695	3
TA I	1213	937	631	2
TOTAL	14822	11057	-7320	86

TABLE V. RESULTING 1-FTE AVERAGE TC3 SALARIES BY RANK AND YEAR

RANK	CURRENT	86-87	87-88	88-89	+% 86-87	+% 87-88	+% 88-89
PROFESSOR	30842	33450	36243	39214	8.45%	8.35%	8.20%
ASSOCIATE	23061	25999	29045	32315	12.74%	11.71%	11.26%
ASSISTANT	20659	22459	24182	25990	8.71%	7.67%	7,48%
INSTRUCTO	17867	19366	20937	22563	8.39%	8.12%	7.76%
TA III	17650	19232	20893	22610	8.96%	8.64%	8.22%
TA II	14785	16051	17406	18847	8.56%	8.44%	8.28%
TA I	13430	14579	15810	17120	8.56%	8.45%	8.28%

TABLE III. 1-FTE $'S NEEDED TO REACH 16 CC AVE

RANK	85-86	86-87	87-88	88-89
PROFESSOR		50758	39228	26469
ASSOCIATE		102661	78077	53440
ASSISTANT		24564	15771	10004
INSTRUCTOR		22563	16147	9685
TA III		11071	7997	4864
TA II		4003	3092	2084
TA I		2426	1874	1263
TOTAL		218046	162185	107808

TABLE VI. RESULTING ACTUAL SALARY ADJUSTMENTS AND TOTALS

	ADJUSTMENTS			TOTALS		
RANK	86-87	87-88	88-89	86-87	87-88	88-89
PROFESSOR	14384	14930	15132	635546	688609	745057
ASSOCIATE	28756	29362	30178	515129	575399	640101
ASSISTANT	6629	5714	5444	344196	370562	398239
INSTRUCTO	5480	5270	4751	250295	270582	291568
TA III	3137	3044	2781	115391	125359	135661
TA II	926	968	993	38196	41456	44937
TA I	687	713	722	29158	31621	34240
TOTAL	60000	60000	60000	1927912	2103587	2289802

NOTES ADJUSTMENTS $ SALARIES ARE FOR 10 MONTHS OF EMPLOYMENT ONLY!

PARAMETERS

1. ATB % = ACROSS THE BOARD INCREASE
2. POOL = DOLLARS ALLOCATED FOR ADJUSTMENTS

DEFINITIONS

1. % POOL = $$'S NEEDED FOR RANK AS % OF TOTAL $$'S NEEDED
2. PRTN POOL = PORTION OF POOL DOLLARS DETERMINED BY "% POOL"
3. DIFFERENCES ARE BETWEEN TC3 AVERAGES AFTER ATB% BUT BEFORE ADJUSTMENT

TABLE VII. TARGET STARTING SALARIES AND INCREMENTS

ADJUSTMENT FACTOR	1.9
INCREMENTAL FACTOR	1.01

RANK	85-86 ASSOCIATE MINIMUM	TARGET MINIMUM
PROFESSOR	19500	37050
ASSOCIATE	17100	32490
ASSISTANT	15000	28500
INSTRUCTO	13200	25080
TA III	12900	24510
TA II	11400	21660
TA I	10100	19190

TABLE VIII. 1986-87 INDIVIDUAL SALARY ADJUSTMENTS AND TOTALS BY RANK

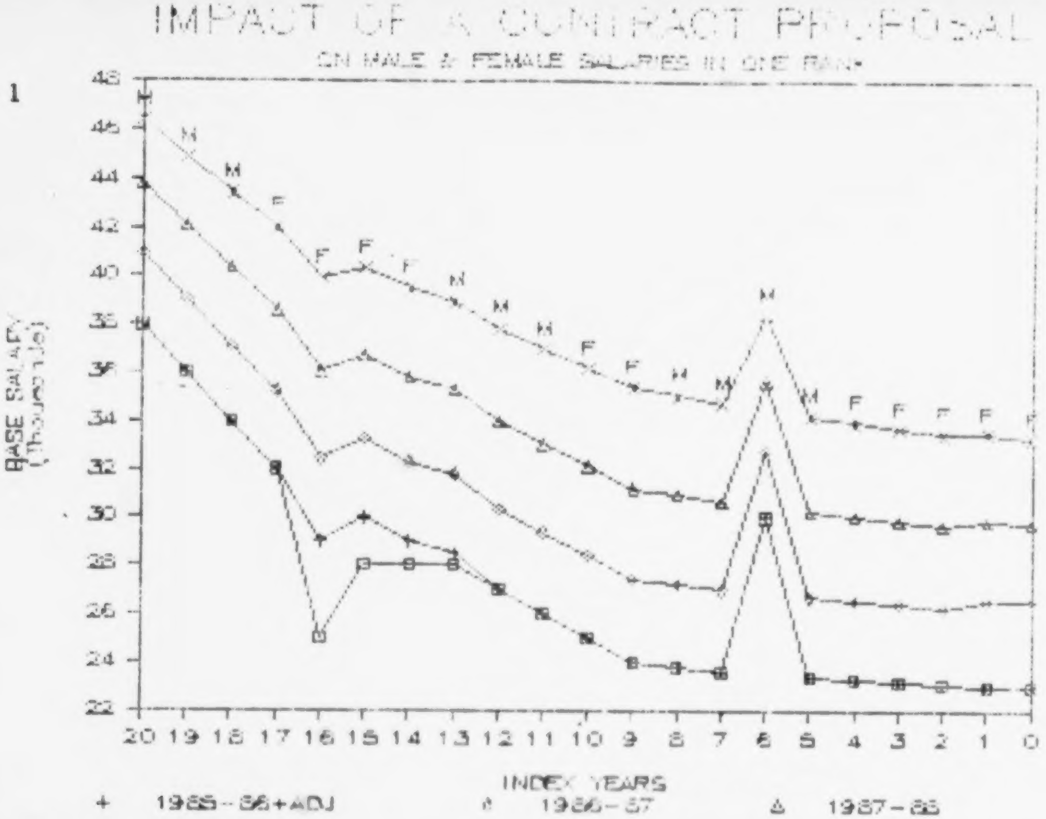
85-86 SALARY	EQUITY ADJUSTMNT	85-86 SAL AT 1 FTE	85-6 ADJ SALARY	RANK NAME	INDEX YEARS	1.06 ATB	10M FTE	TARGET SALARY	DIFFER IN $$$	ADJUSTMT TARGET	ADJUST AS %	ADJUST IN $$$	86-87 SAL AT 1 FTE
				PROF									
38000	0	38000	38000	A	20	40280	1	45208	-4928	4928	2.18	654	40934
36000	0	36000	36000	B	19	38160	1	44760	-6600	6600	2.92	877	39037
34000	0	34000	34000	C	18	36040	1	44317	-8277	8277	3.66	1099	37139
32000	0	32000	32000	D	17	33920	1	43878	-9958	9958	4.41	1322	35242
25000	4000	29000	29000	E	16	30740	1	43444	-12704	12704	5.62	1687	32427
28000	2000	30000	30000	F	15	31800	1	43014	-11214	11214	4.96	1489	33289
28000	1000	29000	29000	G	14	30740	1	42588	-11848	11848	5.24	1573	32313
28000	500	28500	28500	H	13	30210	1	42166	-11956	11956	5.29	1588	31798
27000	0	27000	27000	I	12	28620	1	41749	-13129	13129	5.81	1743	30363
26000	0	26000	26000	J	11	27560	1	41336	-13776	13776	6.10	1829	29389
25000	0	25000	25000	K	10	26500	1	40926	-14426	14426	6.39	1916	28416
24000	0	24000	24000	L	9	25440	1	40521	-15081	15081	6.68	2003	27443
23800	0	23800	23800	M	8	25228	1	40120	-14892	14892	6.59	1978	27206
23600	0	23600	23600	N	7	25016	1	39723	-14707	14707	6.51	1953	26969
30000	0	30000	30000	O	6	31800	1	39329	-7529	7529	3.33	1000	32800
23400	0	23400	23400	P	5	24804	1	38940	-14136	14136	6.26	1877	26681
23300	0	23300	23300	Q	4	24698	1	38554	-13856	13856	6.13	1840	26538
23200	0	23200	23200	R	3	24592	1	38173	-13581	13581	6.01	1803	26395
23100	0	23100	23100	S	2	24486	1	37795	-13309	13309	5.89	1767	26253
23000	0	23000	23000	T	1	24880	1	37421	-12541	12541	5.55	1665	26545
23000	0	23000	23000	U	0	24880	1	37050	-12170	12170	5.39	1616	26496
521400	7500	528900	528900	Subtotal	118		19			225908	100	30000	590634
27442		27837	27837	Average	6	29507							31086

TABLE XI. % OF PARITY IN 1-FTE 10-MONTH SALARIES

RANK	1985-86	1986-87	1987-88	1988-89
PROFESSOR	0.00%	23.21%	48.89%	76.45%
ASSOCIATE	0.00%	26.70%	53.48%	82.73%
ASSISTANT	0.00%	36.78%	60.96%	85.07%
INSTRUCTR	0.00%	33.26%	66.80%	98.31%
TA III	0.00%	30.95%	62.52%	92.66%
TA II	0.00%	25.45%	53.56%	83.70%
TA I	0.00%	25.46%	53.58%	83.73%
TOTAL	0.00%	27.77%	55.36%	84.21%

NOTE: COMPARISONS BASED ON 16 CC 1985-86 DATA
PARITY DEFINED AS 16 CC MEDIAN SALARY
PARITY FOR TA'S BASED UPON AVERAGE % INCREASE
NEEDED TO RAISE EACH RANK TO PARITY IN 1985-86

FIGURE 1



```
28 AUG 86   ANALYSIS OF NEW FACULTY UNIT SALARY DATA
09:29:05    ADJUSTMENTS NEEDED FOR EQUITY WITH MALE EQUIVALENT SALARIES


 TABLE XII                         * * * *  M U L T I P L E   R E G R E S S I

Equation Number 1    Dependent Variable..   NADJBASE    85-86 BASE AFTER 6% INCRE


Residuals Statistics:
Selected Cases:  SEX EQ 1
                    Min             Max        Mean   Std Dev     N

*PRED        16651.2813      37753.6875  27732.0483 6493.0415    36
*RESID       -3315.1509       5431.4355       .0000 2054.7870    36
*ZPRED          -1.7066          1.5434       .0000    1.0000    36
*ZRESID         -1.5666          2.5667       .0000     .9710    36

Total Cases =        36

Residuals Statistics:
Unselected Cases:  SEX NE 1
                    Min             Max        Mean   Std Dev     N

*PRED        17354.5078      33542.5391  22915.1790 4465.8774    34
*RESID       -2993.9834       2177.8691   -210.5243 1217.1766    34
*ZPRED          -1.5983           .8949      -.7419     .6878    34
*ZRESID         -1.4148          1.0292      -.0995     .5752    34

Total Cases =        37


Multiple R for Unselected Cases =    .96655
                 Selected Cases =    .95340
```

USING MULTIPLE REGRESSION TO ILLUMINATE FACULTY SALARY COMPARISONS

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Each spring the Association of American University Professors (AAUP) publishes the annual Academe issue which presents salaries of full-time instructional faculty in America's colleges and universities. How these data are used and interpreted by faculty and administrators varies widely from institution to institution. Some schools simply compare their "all rank" average salary to the national norms for their category (e.g., all IIB or IIB private, independent). Other schools use regional comparisons or look at salaries expressed in real terms. Other institutions eschew the national norms and select a smaller reference group for comparative purposes.

All of these approaches, or combinations of them, use published Academe salary data at basically face value. However, individual institutions have varying constraints placed upon their ability to finance faculty salary and other expenditures. This paper explores the relationships between faculty salaries and other key institutional characteristics such as enrollment, tuition charges, and endowment. Its purpose is to investigate the salary levels at a small private, independent IIB college given certain constraints on other variables which affect revenue.

Sample. The sample for this study consisted of 65 private, independent IIB colleges with complete data on 1983-84 faculty salaries, 1982-83 FTE enrollment, tuition, and endowment market value. I used the previous year's data on enrollment, tuition charges, and endowment since college administrators will use current figures to plan the following year's salaries.

The information which was used to construct the data file can be easily obtained. Data on salaries for small samples can be taken from Academe journals. If a larger sample is required, the salary data may be purchased on floppy disks from Maryse Eymonerie Associates. Enrollment and tuition charges can be taken from commercially available college guides. Probably the most reliable of these is the College Board Handbook. Endowment information can be found in Voluntary Support for Education (published annually by the Council for Financial Aid to Education), or purchased from the U. S. Department of Education in the form of HEGIS financial statistics tapes.

The college of interest in this study is a small enrollment, non-denominational, coeducational, private, liberal arts college in the mid-atlantic region. To preserve anonymity in this study, however, I refer to it as College A.

Methods. The main purpose of the analysis was to determine how College A compared to the sample of 65 private, independent institutions on salary levels, given this College's small enrollment and lower tuition charges. The 65 institutions in the sample constitute about 40 percent of the total

IIB private, independent population. The chart below indicates that the salary means for the sample and the full population are almost identical which indicates that the sample probably approximates the national IIB private, independent norms:

Faculty Rank: 1984-85	All IIB Schools	65B Schools	Difference
Professor	$36,500	$35,851	$649
Associate Professor	27,670	27,616	54
Assistant Professor	22,530	22,295	235
All Ranks Average	27,790	28,139	-349

For the various variables used in the analyses, College A stands at the 48th percentile on average salary, 49th percentile on endowment, 34th percentile on tuition charges, and 18th percentile on undergraduate enrollment in this sample. In other words, College A is approximately at the sample mean on average salary and endowment, but substantially lower tuition charges, and near the bottom of the range on undergraduate enrollment.

I next computed simple correlations between faculty salaries and tuition, endowment, and enrollment. All three have statistically significant correlations with salary. Tuition correlates 0.717 with average faculty salary, endowment correlates 0.652, and enrollment has a much more modest correlation of 0.194. All the correlations are positive -- schools with higher tuitions, for example, are likely to demonstrate higher faculty salaries. But as is well known, correlations do not tell much more than the size and direction of a single relationship. I therefore turned next to multiple regression analysis. Multiple regression allows one to analyze the independent contribution of tuition, enrollment, and endowment to the variation in average salary.

Table 1 shows the results of regressions of average faculty salary on the three independent variables. All three are statistically significant predictors of faculty salary. Tuition and endowment explain almost 70 percent of the variance in average faculty salaries (Eq. 3). When enrollment is added to the equation (Eq. 4), explained variance increases to almost 75 percent -- a substantial amount by social science standards. The multiple correlation between salary and the three independent variables is 0.86 -- considerably higher than any of the single correlations mentioned above.

The principal utility of using regression in this fashion is that it enables the researcher to generate a prediction equation that is the best possible weighted estimate, for this sample of IIB institutions, of predicted salaries based on tuition, endowment, and enrollment. One can then use the prediction equation (see Table 1, Equation 4) to generate the predicted faculty salaries for individual colleges, and compare the observed salary average to the predicted salary. This enables an institution to determine whether it is doing better or worse than expected given its standing on tuition, enrollment, and endowment.

The predicted salary at College A is found by taking Equation 4 in Table 1 and multiplying College A's values on the three predictor variables by the unstandardized regression coefficients. The predicted salary given the College's levels of tuition, enrollment, and endowment, is only $22,866. The observed salary (in 1983-84) is $25,000, or $2,634 higher than expected. College A's salary ranking, therefore, is largely explainable because of its standing on tuition charges, endowment, and enrollment. Controlling for these, the College's average salary is actually higher than would be expected.

Caveats and Conclusion. It is important to stress that the foregoing analysis is not intended to be "causal." The regression model does not mean that higher tuition automatically results in higher faculty salaries. The actual causes of higher salaries at one college compared to another may be due to cost of living conditions, unionization, faculty productivity and "unmeasured variables." Nonetheless, this study demonstrates a very strong statistical association which suggests that the combination of tuition, endowment, and enrollment levels can be used to effectively predict various institution's average faculty salaries.

A second caution is that some faculty and administrators will criticize using the "all ranks" salary average as the dependent variable. The all ranks average as computed by Maryse Eymonerie Associates includes the rank of instructor and will therefore lower the overall average for any schools who employ considerable numbers of instructors. For this reason, schools that elect to use regression in the ways described above would be better served by using three separate dependent variables (professor, associate professor, and assistant) instead of the single overall average.

Finally, the preliminary research reported in this paper suggests other, more detailed analyses. A larger data base, for example, would lend itself to stratification since some researchers may want to explore the stability of the regression coefficients among schools of different sizes. Other independent variables could also be tested for their contribution to the prediction of salary levels. Some possible variables would include faculty size and interest on endowment (instead of total endowment size). Finally, it might also be worthwhile to investigate the contribution of interaction terms to the prediction of salary levels.

Table 1:

Regressions of Average Faculty Salary on Tuition, Endowment, and Enrollment for Private, Independent IIB Colleges

		Independent Variables					
		Tuition	Endowment	Enrollment	Constant	$\bar{R}^2$	SEE
Eq. 1.	b	1.67183			15350.81	.506	3290.21
	B	.717					
Eq. 2	b	---	.000693		23819.32	.416	3577.99
	B		.652				
Eq. 3	b	1.29559	.0000483		16242.24	.685	2628.12
	B	.555	.435				
Eq. 4	b	1.35687	.0000458	1.00135			
	B	.582	.431	.214	14279.65	.727	2447.48

Note: All unstandardized coefficients were twice their standard error. Eq. 4 has an F value of 57.71, significance of F = .0000. The standard deviation of faculty salaries in the sample is 4681.2.

COMPUTER MODELING AND CONTRACT NEGOTIATIONS: A FORMULA FOR DISTRIBUTING INEQUITY FUNDS

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INTRODUCTION

In 1984 the University of Connecticut implemented a job classification scheme that established minimum and maximum levels for 12 salary groups of employees in the professional support staff union. As a result of the newly assigned minimums, certain recently hired individuals were being paid nearly the same amount as employees who had been working at the same position for a longer period of time. This situation was perceived as inequitable by both university and union officials, and as part of the 1985 contract a fund was set up to alleviate this problem. Approximately $124,000 was set aside to deal with General Fund inequities. Non-general fund employees were to receive additional funds based on the formula derived for general fund employees. Since the total number of dollars to be spent was contractually designated, all that was needed was a mutually acceptable formula for the distribution of these funds.

Shortly following ratification of the contract, the University of Connecticut Office of Institutional Research was asked by the administration to sit in on negotiations and incorporate the concepts presented by both sides into a mathematical formula for fund distribution. This paper discusses the formulation of the model from its origin to the final version actually used for dollar distribution.

BASIC UNDERLYING PREMISE

During the early negotiations, it was agreed that the overall task was to identify employees who fell below some accepted minimum salary level for their years of service within a salary group. The goal was to place a dollar value on experience and use this value to set a minimum salary for each year of service within a salary group. In other words, a person in a specified salary group should minimally make "n" amount of dollars after "m" number of years. These minimum salaries could then be compared against actual employee information and employees who fell below the minimum range placement value would be eligible for equity awards.

Using the theoretical framework outlined above, a rudimentary individual model for payout was formulated. It is displayed below.

Individual $ Award = Range Placement Salary - Individual Salary

where:

RANGE PLACEMENT SALARY is the amount of money that an individual in a specified salary group with a specified number of service years should be earning.

INDIVIDUAL SALARY is the amount of money an employee is actually receiving after a specified number of service years.

INDIVIDUAL $ AWARD is the difference between the RANGE PLACEMENT SALARY and the INDIVIDUAL SALARY, if the INDIVIDUAL SALARY is less than the RANGE PLACEMENT SALARY.

It was decided that a two step process was necessary for identification of eligible recipients. First, individual employee information would have to be gathered, verified, and accepted by both union and management. Second, the employee data had to be used to compute minimum range placement values in such a way that the total sum of the resulting awards closely approximated without exceeding the total dollar amount specified by the contract. The overall equation is shown below.

TOTAL CONTRACTED $ = Sum of(INDIVIDUAL $ AWARDS)

The following sections discuss the two stages in greater detail.

EMPLOYEE INFORMATION

Labor and management met with the Office of Institutional Research to discuss the general parameters for the formula. All agreed that the analysis was to be restricted to the 627 members of the professional support union and that the following employee data elements were central to assessment of employee eligibility for an inequity award:

1. The employee's years of service.
2. The employee's salary.
3. The employee's salary group with its related minimum salary.

However, the exact definitions of the data elements were to be revised as both sides evaluated how the definitions shaped the distribution formula. The data collection needed to be as broad as possible to accommodate the various contingencies to be discussed at the bargaining table and yet be accomplished within a short period of time.

Two general problems faced the IR staff in collecting employee data. Most of the current data necessary for creating a model were available but did not exist in a centralized data base. Data items had to be pulled into one base from files maintained by the Personnel, Payroll, Budget, and Labor

Relations Offices and by the Office of the Vice President for Academic Affairs. Almost no employee historical data existed in machine readable form. Information prior to the latest or current entry on an employee was recorded on a variety of printouts and on personnel and payroll card files. Historical data had to be tracked down for individuals and manually entered into a data base.

The basic data collected were stored in a FOCUS data base. FOCUS, a fourth generation programming language, was chosen for use in this project for the following reasons:

1. It is a powerful data base management system.
2. It can be used interactively providing rapid answers concerning the impact of changes made in modeling parameters.
3. It is an excellent report generator allowing rapid dissemination of detailed impact reports to the negotiating teams.
4. Perhaps most importantly, it is well known to the IR staff, thus eliminating the need for outside programming assistance.

Data were collected on the following employee service components:

1. **Time in the professional support staff union.** This had not been recorded anywhere. Union start date was easily derived for staff in job titles assigned to the union when the first contract became effective (December 31, 1976) and for staff initially and continuously hired into union job titles. Investigative work was required to establish the start date for employees transferring into the union or moving between temporary and permanent employment.
2. **Time on the professional payroll**, including service outside the professional support staff union as faculty, administrators, graduate assistants, residence hall counselors, or on-call nurses. Professional

payroll start date was available in existing computer files except for staff with interrupted service.

3. **Time on any regular payroll at the University,** including time as clerical or maintenance support in the classified system. This should have been easy to obtain but was not. Because the professional and classified payrolls are maintained separately and are mutually exclusive, a classified employee converted into a professional is dropped from one payroll and "newly hired" into the other. Approximately 20 percent of the union membership were converted classified staff.

Additional components perceived by either labor or management as desirable were uncollectible, namely:

4. **Time in the current job.** Until the 1984 job classification, most of the union members had one of three generic pay titles even though their functions and responsibilities varied enormously.
5. **Time on special and student labor payrolls.** The record keeping was too limited and rudimentary.
6. **Time prorated for any part-time employment.** Although specific job titles flagged hourly employment, there was no computerized means for tracking the past part-time employment of permanent staff. IR had hoped to include this data but was unable to make the manual search and entry before the deadline for finally setting the formula.

Before the negotiations opened, the two sides were at opposite ends of the spectrum on the definition to be used for years of service. Management was for limiting the time to that on the current job or in the union. If the analysis was to insure that staff in a particular group of jobs had achieved roughly the same salary range after roughly the same amount of experience on the job, then only time in the current job should count. Management also felt strongly that union negotiated items should be directed only toward years when the union existed. Why should the union contracted funds be allocated to members for periods of nonmembership? In contrast, union officials wanted to count all time on all payrolls. The union felt that many of the current members had been doing essentially the same jobs on other payrolls or on temporary appointments before they were in the union. It was clear that much discussion of the impact of the various definitions of service would be necessary.

Data were collected on the following salary components for each year the employee was on the University's regular payrolls from 1976 (the first year of the union contract) to 1985 (the effective year of the negotiated equity analysis):

1. Annual total base salary.
2. Annual across-the-board contractual lump sum and percentage increase.
3. Annual merit amount.
4. Any promotion or job change money added to base salary during the year.
5. Any equity payment added to base salary during the year. Only the current (1985) total base salary existed in machine readable form. Prior years' total salaries and merit amounts were manually entered into the IR data base from various printouts. Promotion and equity amounts had to be reconstructed from scattered paper documents. Once items 3 through 5 above were established, item 2 could be derived. A FOCUS program was created to verify that items 2 through 5 summed to the annual base salary for each year of data.

Before the negotiations began, the two sides also stood far apart on the salary components to be included in the model. Management was strongly opposed to using actual salaries. It did not want to penalize staff who had received large merit awards and who therefore would appear to be overpaid relative to less meritorious staff with the same length of service. Labor felt strongly that merit awards were sometimes in certain departments awarded for reasons other than merit and that some deserving members who went without merit awards were unfairly underpaid. Therefore, labor representatives wanted to limit the salary definition to current salary and highlight the plight of members left out of past merit awards. Clearly, there would need to be some compromises made at the negotiations.

Other data items collected for identifying eligibility and for costing were:

1. Salary group in the job classification scheme. This seemed simple enough except that some of the union membership were in the process of being reclassified into higher salary groups at the same time the data were being collected for this analysis.
2. Department and vice presidential area.
3. Funding for the job. Some employees were split-funded creating problems in costing.

Approximately four months were required to create a data base containing the information IR had anticipated might be used at the bargaining table. An additional six weeks were required for the union team to review the data and for the employees to verify the salary and service information. For the verification, IR provided union officials with a tape of the data, union officials produced and mailed individual employee sheets, and IR resolved any discrepancies noted by the employee. The deadline of arriving at a final formula and disbursing the funds before the next fiscal year created enormous pressure to collect and verify the data as quickly as possible.

MODELING USING RANGE PLACEMENT VALUE

As discussed above, the areas of service and salary were the major stumbling blocks under discussion at the bargaining table. Each definitional difference had an impact on the dollar amount to be assigned to the placement value and it soon became apparent that a means for rapidly adjusting the placement value based on changes in employee definitions was necessary. An optimization routine was written in FOCUS to handle this task. The various interpretations of salary and service, being negotiated during bargaining sessions, were included into a menu driven system. Users could specify any desired combination of factors and an optimum dollar per service year figure was calculated. This optimum dollar amount could then be entered into a second routine that produced individual award counts and amounts. Utilizing these two routines negotiators were able to rapidly assess the impact of proposed definition changes on individuals and groups of individuals. As numerous combinations were tested to see if they produced intended results, compromise began to take shape at the bargaining table. As modeling continued using the various alternatives, management conceded and agreed that service be defined as all service (permanent and temporary) on the two regular payrolls. In return the union compromised and accepted a calculated salary value that included an average yearly merit figure. This value was based upon salary earned each year in the union including annual across-the-board payments, promotion/job change and equity amounts and an average merit amount (the contractual pool percentage for the entire union). A FOCUS program was created to accumulate the salary amounts into a 'total' individual salary.

Despite the compromise, as testing continued it became apparent that due to the size of the total pool a relatively small number of individuals would come away with the lion's share of awards if no additional limitations were applied. In an attempt to increase the number of individuals receiving awards, variable value caps were programmed into the modeling routines. Cap values for the following items were instituted.

1. A maximum and minimum award value could be entered.
2. A maximum and minimum service year value could be entered.
3. A maximum percentage range placement value for a salary group could be entered.

These external limitations were then run in combination with the salary and service variations. The number and type of employees to receive awards were of primary concern to both union and management. After many iterations, a final model was produced which was acceptable to both parties. Details of the agreement are outlined in the next section.

RANGE PLACEMENT CRITERIA

An agreement between the union and the UCONN administration was reached in mid-April of 1986. Major points from the agreement are listed below by category.

External Limitations

1. Regular payroll service up to a maximum of 20 years was counted.
2. Maximum award limited to 2000 dollars.
3. Minimum award must exceed 125 dollars.
4. A maximum range placement value was used. No range placement value could exceed the midpoint of the employee's salary group.

Employment Limitations

1. Must have been member of union as of July 5, 1985.
2. Must have been employed at the University before July 1, 1981.
3. The individual salary used was a computed salary with average merit included.
4. Both classified and professional service at the University were counted.

The parameters listed above resulted in an assigned dollar value of 318 dollars per year. The range placement value for each salary group year was the salary group minimum + (the eligible service years * $318). The general fund cost was approximately 124,000 dollars with 102 general fund employees receiving awards. For all funds, 161 employees received awards at a total adjusted cost of approximately 187,000 dollars.

STUDENT INDEBTEDNESS: A SURVEY OF STATE UNIVERSITY GRADUATES

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INTRODUCTION

Concern about student indebtedness has increased as dependence on loans has increased. There is a growing body of research on student indebtedness but little of it deals with undergraduate students at public insititutions of higher education. It was this concern, along with a dearth of data that could be matched across the four campuses that led to the development of the Connecticut State University Graduating Senior Survey. This paper briefly describes the results of the survey, first looking at the extent and amounts of indebtedness among the graduates and second, comparing the responses of students who had loans and those who did not.

Connecticut State University is the largest four year institution in the state. It consists of four campuses, Central, Eastern, Southern and Western. The campuses range in size from slightly under 4000 to just over 13000 students and together enrolled almost 35,000 students in Fall 1986. Bachelors and Masters degree programs are offered at each campus. Each year CSU awards about 3,500 undergraduate degrees in over 70 programs. For the academic year 1985 86, the average annual cost of tuition and fees for an instate undergraduate student was $1.161. The average total student budget for CSU listed in the 1985/86 College Cost Book (The College Board). was $4.750.

METHODOLOGY

The questionnaire was developed by the Institutional Research Advisory Council of CSU. Survey forms were sent during April/May from each campus with a letter from that campus President asking for the student's cooperation. Mail back envelopes were included in the mailing.

Questionnaires were sent to all 3,547 students graduating that academic year with a baccalaureate degree. No follow-up was undertaken to pick up the non-responses. Nevertheless. the response rate was a very satisfactory 47 percent, giving a total of 1,683 returns. It must be noted that the questionnaire was sent to the entire graduating class. It is not therefore a probability sample and care must be taken in generalizing the results of the study beyond the group of respondents.

A second caveat is that self reported data on loan amounts may not be as solid as that taken from financial aid records. There were some extreme responses but the data obtained in the study does not contradict the limited data available from other campus sources.

RESULTS

In answer to the question on the forms of financial aid received, 43% of the responding graduating seniors said that they had loans as financial aid during their undergraduate career. In answering the question on actual loan amounts, an additional 6% of the respondents entered amounts they expected to repay on loans from family and personal bank loans. These loans are not typically classified as "financial aid" and may be somewhat "softer" data than that listed for official loan sources. It may be that at least some family loans are eventually forgiven by the lender. Nevertheless, a significant number of such loans were reported by the graduating seniors, showing that they are a salient part of the debt picture for these students.

Turning to the actual loan data, almost one half of the responding graduating seniors were graduating with debts incurred for the cost of their education. 43% (717) of the total group gave loan amounts owed to governmental sources through the Guaranteed Student Loan Program, the National Direct Student Loan Program, the Teacher Loan Program and/or the Parental Loan Program.

As Table I shows, the most common loan source was the Guaranteed Student Loan (GSL). Some 653 respondents reported loan amounts owed upon graduation to that source. This group makes up 39% of all the students responding to the questionnaire and 79% of all those giving loan amounts owed. The median indebtedness given was $4,500. The amounts reported ranged from $100 to $12000.

These results are consistent with the findings of the Boyd and Martin (1985) study of GSL borrowers in repayment, which reported a mean debt for those receiving loans as undergraduates in public institutions of $4,181.

TABLE 1

CONNECTICUT STATE UNIVERSITY
GRADUATING SENIOR SURVEY: 1986

	Number of Persons with loans	Percent of Total (1683)	Percent of All Loans	MEDIAN LOAN $ AMOUNT
Guaranteed Student Loan	653	39%	79%	$4,500
National Direct Student	194	12%	24%	$1,200
Teacher Loan Program	11	1%	1%	$3,000
Parent Loan Program	26	2%	3%	$3,900
Personal Bank Loan	63	4%	8%	$2,500
Family/Friend Loan	104	6%	13%	$2,000
Other Loans	55	3%	7%	$2,500

TABLE II

CONNECTICUT STATE UNIVERSITY
GRADUATING SENIOR SURVEY: 1986

LOAN AMOUNTS OWED: GUARANTEED STUDENT LOANS

$ AMOUNT		NUMBER	PERCENT
1-1000		44	6.7%
1001-2000		60	9.2%
2001-3000		146	22.4%
3001-4000		62	9.5%
4001-5000		110	16.8%
5001-6000		27	4.1%
6001-7000		33	5.1%
7001-8000		66	10.1%
8001-9000		21	3.2%
9001 OR MORE		84	12.9%
	Total	653	

LOAN AMOUNTS OWED: ALL SOURCES COMBINED

$ AMOUNT	NUMBER	PERCENT
1-1000	56	6.8%
1001-2000	71	8.6%
2001-3000	174	21.1%
3001-4000	76	9.2%
4001-5000	105	12.7%
5001-6000	49	5.9%
6001-7000	46	5.6%
7001-8000	75	9.1%
8001-9000	31	3.8%
9001 OR MORE	142	17.2%
	825	

The second largest loan source, though far smaller in number of recipients and amounts borrowed than GSL, was the National Direct Student Loan (NDSL). The median debt amount listed was $1,200. A total of 193 graduating seniors gave amounts owing to this source. This represents 12% of all respondents.

A total of only 11 students gave amounts borrowed from the Teacher Loan Program. This is a state based form of aid for individuals intending teaching as a career. The loan is forgiven by the state if the recipient teaches in the Connecticut public school system for a given number of years after graduation.

The Parent Loan Program is a relatively recent Federal Loan Program which loans money for educational costs to the students parents. It is not clear that students understood that this formal program was the one referred to on the questionnaire. 26 students gave amounts owed under this program. The amounts ranged from $600 to $12,000, with $3,900 as the median.

In terms of private loans, 63 students listed personal bank loans. The amounts ranged from $25 to $12,500. The median amount was $2,500. In some cases, as Guaranteed Student Loans come through banks, it is possible that students may have categorized the loan inaccurately.

Loans owed to family/friends were listed by 104 students, 6% of the total number of respondents. This represented 13% of all those giving loan amounts and was the third largest source of loans. Amounts ranged from $200 to $20.000 the median being $2.000.

Combining all loan sources. 825 students stated that they owed monies ranging from a low of $25 to a high (only one case) of $75.000. While this latter seems unlikely. 142 students did report total loan amounts of over $9.001. The median total loan amount, including all sources, was $5.000. This is significantly lower than the "between $7.000 and $8.000" cited by Newman (Connection. 1986) for students who attend public four year insitiutions.

TABLE II shows the range of loan amounts listed by the graduating seniors. Data are given for the Guaranteed Student Loan and for all loans from all sources combined.

To give a sense of what loan repayment might mean for a student with a Guaranteed Student Loan, repayment schedules for loans bearing 8% interest show that over 9 years, a $4.500 loan (the median loan amount for the respondents) would cost $58.59 per month. A loan of $6.000 repayed over 10 years would mean monthly payments of $72.80. These are not trivial amounts of money for those making their first major choices about careers, further education, family formation etc.

COMPARISON OF THOSE WITH AND WITHOUT LOANS

Whether or not a student receives a loan is subject to a complex range of factors including the student's financial background and their attitudes about borrowing. The survey did not set out to provide answers to questions about whether students who do not get loans prefer not to get them, do not need them. work to avoid them etc. In other words, attributing causality to the differences between those who did get loans and those who did not would be an illegitimate use of the data. Nevertheless, the differences and similarities are interesting and provide clues for further research.

Table III shows the data for those with and those without loans. Students with loans were more likely to be younger than those without. 73% of those with loans were between 20 and 24 years of age compared with 59% of the no loan group. Distribution by gender was quite similar, in both cases about one third of the group was male.

A full 60% of the loan recipients reported attending CSU on a full time basis only, compared with 45% of the no loaners. Only 3% of the loaners, in contrast to 15% of the no loaners reported having attended CSU on a part time basis only. The proportions having undergraduate careers that included both full and part time attendence at CSU were quite similar, 22% of the no loaners and 24% of the loaners reported both student statuses.

Those with loans were much more likely to have received other forms of financial aid. Over one third of them cited grant or scholarship aid and 18% of them, work study. The groups were similar in the proportions (17% no loaners and 16% loaners) receiving 'other aid'. The examples of other aid given on the questionnaire were tuition reimbursement or waivers.

Less than one half of each group, in fact only 42 percent, stated that they had completed their bachelors degree in four

TABLE III

CONNECTICUT STATE UNIVERSITY
GRADUATING SENIOR SURVEY, 1986

	NO LOANS		LOANS	
TOTAL	858		825	
FEMALE	509	59%	524	64%
MALE	293	34%	299	36%
UNDER 19 YRS	5	1%	2	0%
20 -24 YEARS	462	54%	599	73%
25 YRS OR OVER	338	39%	224	27%
STUDENT ATTENDANCE STATUS				
FULL TIME ONLY	385	45%	495	60%
PART TIME ONLY	125	15%	26	3%
FULL AND PART TIME	186	22%	202	24%
NO DATA	162	19%	102	12%
FINANCIAL AID				
GRANT OR SCHOLARSHIP	65	8%	308	37%
WORKSTUDY	25	3%	152	18%
OTHER AID	146	17%	131	16%

Students may have had more than one aid type.

YEARS TO BACHELORS DEGREE				
4 YEARS OR LESS	363	42%	344	42%
5 YEARS	220	26%	303	37%
6 OR MORE YEARS	205	24%	169	20%
EMPLOYMENT STATUS WHILE ATTENDING CLASSES				
NOT EMPLOYED	129	15%	124	15%
20 A WEEK HRS OR LESS	272	32%	370	45%
21 HRS A WEEK OR MORE	390	45%	326	40%

years or less. Those with loans were more likely to have finished in an additional year than those without. 20% of those with loans and 24% of those without took 6 or more years to complete their program.

In terms of employment status, perhaps the biggest surprise of the study was the similarity of the two groups. It is frequently suggested, by administrators if not researchers, that students work to avoid the need for loans. 15% of both groups reported not having been employed 'on average' during classes. 32% of the no loaners and 45% of those with loans reported working 20 hours a week or less. 45% of the no loaners and 40% of the loaners reported working 21 hours a week or more. Though there are differences here, and in the predictable direction (more student with loans work less hours a week, more students without loans work more hours per week), it is still the similarity of the distribution that is unexpected.

CONCLUSIONS

The large number and proportion of undergraduate students graduate from Connecticut State University having accumulated debts. Almost one half of the students responding to the questionnaire faced repayment upon graduation, a significant number of them had received other forms of financial aid in addition to the loans and a full 85% of them had worked while attending classes. It is still difficult to judge whether or not the extent and amount of idebtedness is typical or atypical for the type of institution.

It was not surprising but it was useful to show how large a number of the loans were through the Guaranteed Student Loan Program. Clearly, changes in this program at the federal level could have very significant impacts on students at Connecticut State University.

Little is known about the extent of loan activity within family/friend networks. A full 13 percent of all the loan amounts given by the respondents were attributed to this source. This is a difficult statistic to assess and worth further investigation.

The comparison of loaners and no loaners raises some interesting questions for further research, especially concerning patterns of financial aid and patterns of work. The finding that such a high proportion of students with loans work while attending classes bears further investigation. Clearly, a sin of omission in this research is the lack of information on student financial background. Perhaps that data would help to explain the findings.

In sum, the Graduating Senior Survey has been a useful tool in helping to provide data to support some 'sensed' events: the dependence on GSL, the length of time taken to finish a degree and the number of students who work while attending classes. It does, however, raise more questions than it can answer. But after all, it is this fruitful aspect of research that keeps us all in business!

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LIFE AFTER GRADUATION: TRENDS IN POST-COLLEGE ACTIVITIES

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INTRODUCTION

Our records indicate that Yale first studied post-graduate plans in 1960. From 1960 to 1973 and then again in 1984, seniors were surveyed in May prior to graduation. A pre-graduation study is convenient and inexpensive for the surveyors. It is convenient because student addresses do not have to be researched and tracked down, and it is inexpensive because questionnaires do not have to be sent through U.S. mail. However, we found at Yale that, before graduation, students are still indecisive about what they expect to do after commencement. They have not finalized their plans, so they still are unsure about activities. Studies conducted before graduation thus revealed more about what students planned to do than what they actually would do after graduation. To assess actual behavior rather than intentions, from 1974 to 1980 and then again in 1985, we contacted students one year after their graduation. It is likely we will follow the same plan in future studies.

METHOD

At Yale, the Office of Institutional Research (and its predecessor the Office of Educational Research) has always coordinated and conducted the study. However, the cover letter attached to the survey and the formal request of information has generally come from the Dean of Yale College, except for a few years when it was requested by the Director of Institutional Research. The Dean asks the graduates to participate in the study "to advise future undergraduates and to help plan for various counseling activities."

In similar studies outside of Yale, an undergraduate Dean is not the only individual that might request information on recent alumni. After looking at a non-representative sample of studies on post-graduate activities (the University of

Connecticut, Cornell University, the University of Illinois, and the University of Massachusetts), we found that similar requests came from the University President, the Vice-President for Student Affairs and the Director of Career Counseling. Depending on the source of the survey, students were asked to participate for a variety of reasons. One school stated that "it is extremely important to both the college and the university community" to find out post-graduation activities because the results are "essential in helping us obtain an accurate and complete picture" of the class.

With regard to the time of conducting a class survey, we found that most other colleges and universities contact their alumni one year after graduation, while one college we contacted waited until people had been graduated ten years. Equally diverse were the kinds of questions covered in the questionnaires. All of the universities in our sample asked a large number of attitudinal questions (e.g., what students' general impressions were of the university and of their undergraduate major program, how their course of study prepared them for their present careers, and their assessment of the overall quality of instruction at the college), in addition to the more basic questions asked about current employment and areas of graduate study.

Over the years, Yale's purpose has been simply to find out what people are doing and where they are doing it. Therefore, the questionnaire has remained short and concise. We ask three basic questions: 1) what are graduates doing? (i.e., field of study, job title, etc.) 2) where are they doing that activity? (i.e., the school, the company, or organization) and 3) what are longer-term education plans? We do not ask attitudinal questions about Yale experience nor do we request evaluations of the university; ours is a single goal survey.

Unlike two other studies that we examined in our sampling, Yale's survey is not anonymous. We ask all students to provide their names on the survey. In doing so, we are not bound to ask routine demographic information about the students, questions which often take extra time to answer, and might reduce our response rate. General background information about each student, e.g., sex, major and honors status, can be generally obtained from other data sources in a university (in our case, the Registrar's Office of Yale College).

We are confident that the format and methodology of our survey of post-graduate activities is appropriate for our student body because we have consistently, even over 26 years, had a high response rate. Except for three years when the response rate was between 74 and 78 percent, 80-90 percent of the entire graduating class have responded to the survey.

We obtain a high response rate from each graduating class surveyed largely because we are persistent. For the five most recent studies, we sent an initial letter to the parents of the graduates sometime around September following graduation. We typically hear from about roughly 30 percent of the parents in response to the survey. About three months later, a mailing is directed to the graduates themselves, and then shortly thereafter, a follow-up letter is mailed out reminding them of the questionnaire. After receiving responses from both the parents and students, we have usually reached a 70 percent response rate. Information on the activities of the remaining 10 percent or so is obtained by 1) writing to prominent graduate and professional schools and asking them directly to list Yale graduates who are enrolled with them, 2) checking notes in our alumni magazines reporting on class activities, and 3) inquiring with our residential college Masters and Deans as to the whereabouts of graduated students.

SURVEY RESULTS

As a point of reference, let us compare Yale's survey results to results reported for similar surveys conducted by the University of Connecticut and Cornell University for the graduating Class of 1985. Given some of the obvious differences in these three institutions (e.g., public vs. private and Ivy League vs. non-Ivy League) there exist some interesting comparisons here. Yale has the largest percentage (34 percent) of people of these three schools going on to full-time graduate and professional study. Even though this is a recent all-time low for Yale, it is still slightly higher than

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Cornell's 29.7 percent and the University of Connecticut's 18.2 percent. Business and management was the area most often chosen by University of Connecticut students entering graduate school, but for Yale and Cornell, medicine and health professions were the most popular areas of graduate study. All three schools had slightly different percentages of people entering law school: eight percent from Yale, two percent from the University of Connecticut, and five percent from Cornell.

In their surveys, both the University of Connecticut and Yale questioned graduates about their plans for study in the future. In addition to the 34 percent of the 1985 graduates who had continued their studies during 1985-86, an additional 36 percent of Yale graduates hoped to study sometime in the future. This totals to 70 percent who are currently in school or hoping to study later. Similarly, the University of Connecticut reported that nearly two-thirds of those who responded to the survey expected to enter graduate or professional school directly following graduation or in the future.

There are fewer differences in comparing Yale, the University of Connecticut, and Cornell when one looks at employment after graduation. Yale's high percentage (60 percent) of students who went on to employment the year after graduation does not seem too far behind the University of Connecticut's 75 percent and only slightly higher than Cornell's 55 percent. In fact, "business" was the area within which the highest percentage of graduates were employed for all three institutions.

Interestingly, jobs in education seemed to be on the increase. Cornell reported 10 percent of its respondents were employed in education, libraries and museums. The University of Connecticut ended a six-year decline in education-related jobs when seven percent of their respondents reported that they were employed in that area. Yale also saw an increase in education-related jobs. Seven percent reported that they were employed in the field of education (instruction and non-instruction), which is the highest percentage reported since before 1969.

Turning to the Yale data, we have cross-sectional findings for 17 classes between the years of 1960 and 1985. In Chart 1, we show the prevalence of four different post-graduation activities, over time: post-graduate study, employment, military, and other or indefinite.

The biggest change over time is in the residual category, here labelled as "Indefinite." The proportion reporting indefinite plans has had a strong impact on our survey. When we surveyed seniors in their final spring semester, many were unable to tell us their post-graduate plans. When we switched our survey date to one year after graduation, we naturally received fewer indefinite responses since everyone was participating in some activity. Although more work is involved in finding students a year after graduation, the higher accuracy of their responses makes it worthwhile. In 1974 when we began to survey students one year out, we noticed a sudden increase in the percentage choosing employment over study. We speculate that the students who are undecided during their spring semester, and perhaps on through the summer, have no choice but to find employment; applying to graduate or professional school involves earlier decision-making in order to meet stringent deadlines.

Until recently, the percentage of seniors continuing on to graduate or professional school has stayed relatively constant at around 50 percent. For the classes of 1984 and 1985, our survey shows for the first time that there is a marked drop in the percentage going on for post-graduate study. Unfortunately, because of internal reasons, we did not do a survey of the classes of 1981, 1982, or 1983; we expect that the trends towards lower graduate and professional attendance began somewhere during that period. Females have always been less likely to go on to post-graduate study than have males; the difference is about five percent.

Post-graduate plans have fluctuated primarily in the areas of employment, military, or "indefinite and other." The proportion of students entering into the military was high through 1969, and then dropped off drastically. When military attendance dropped, the proportions responding that their plans were indefinite rose. Perhaps a great deal of the uncertainty hinged upon the draft and the college deferment. Over the last decade, there has also been a large 15 to 17 point increase in the proportions entering employment after college. Data not shown in this table indicate that many choosing employment after graduation plan to attend graduate or professional school at some time in the future. This leads to the conclusion that Table 1 does not show a trend toward less post-graduate study, but rather, less post-graduate study directly after graduation.

In Table 2, we expand upon Table 1 and look at the types of graduate and professional school programs that seniors chose. As a percentage of all seniors involved in post-graduate study, professional school attendance has consistently outstripped arts and sciences enrollment. However, over time, the percentage choosing arts and sciences has declined slowly but steadily, while only the last two years show a marked decline for professional school attendance. The overall decline in post-graduate study is mainly attributed to a decline in professional school attendance, and not to arts and sciences study, as is commonly believed.

For those who chose professional school, law was usually a slightly more popular choice than medicine through 1980, but the 1984 and 1985 surveys reflect a decline in students attending law school. Other 1985 data not presented here show that law school is a common choice for graduate study in future years. Business school attendance has always lagged far behind law and medicine. This is likely due to the convention of applying to business school only after accruing employment experience. The 1985 data on future study plans confirm that many graduates are planning to attend business school in two years or more time.

In Table 3, we look at only those students who were attending graduate or professional school, and thus avoid the complications of Tables 1 and 2 which implicitly incorporate students who were undecided about their plans. In 1972, arts and sciences attendance takes a small permanent downward dip and professional school enrollment rises. Among the arts and sciences, 1979 marks the beginning of a growing popularity in the Natural Sciences and a decline for the Social Sciences. Humanities trends over time have fluctuated, but 1980-1985 have been strong years. For those attending professional schools, 1980 marks a decline in the proportion attending law and business schools, and a rise in the percentage at medical school.

Since the proportion of students going on to jobs has been growing recently, in Table 4 we put together the sectors of employment that graduating seniors have chosen over time. It should not be a surprise to note that education and social work were popular fields only in the late 1960's. Self-employment has been relatively rare, although we can speculate that a survey of students ten years out would show a greater proportion of entrepreneurs. The biggest employment sectors, and the only ones with constant growth, are business and finance, and industry.

CONCLUSION

At Yale, finding out what students are doing after graduation has proven to be a fruitful project. The responses received from students and their parents include notes or letters both complimentary and critical of a Yale education, and the wide range of jobs, study and activities in general only begin to suggest the diverse effects of a Yale education. Exclusive of staff hours and computing time, the study costs Yale College about $1,000. And because we ask only three specific questions about post-college activities, it is also relatively easy to analyze the data and to report results. The final report that is distributed to the Yale community presents the kind of employment or study undertaken by the graduates, relates student honors and undergraduate majors with post-college activities, and lists popular graduate schools attended.

We plan to continue surveying Yale College graduating classes every other year; the graduates of 1987 will be the next class surveyed. Currently, it is one of the tools used by Yale College to determine what people are doing once they have graduated, to follow trends in post-graduate activities, and to better prepare our current undergraduates for life after Yale.

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Table 1
Senior Plans After Graduation, Spring 1960 to Spring 1985*

	Activity					
Year of Graduation	% Post-Graduate Study	% Employment	% Military	% Other or Indefinite		Total # of Graduating Seniors
1960	51	16	20	13	= 100%**	901
1966	64	11	13	12	= 100%	1010
1968	51	19	20	10	= 100%	1003
1969	46	24	14	16	= 100%	990
1970	46	16	6	29	= 100%	926
1971	51	21	5	24	= 100%	1111
1972	54	19	1	26	= 100%	1093
1973	41	17	1	41	= 100%	1148
1974	48	39	4	12	= 100%	1213
1975	61	36	4	3	= 100%	1210
1976	57	41	0	2	= 100%	1254
1977	51	45	0	3	= 100%	1271
1978	52	45	4	3	= 100%	1301
1979	45	50	4	5	= 100%	1270
1980	48	50	0	2	= 100%	1261
1984	36	52	1	12	= 100%	1255
1985	34	58	1	7	= 100%	1260

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* From 1960 to 1973, approximately 79-80% of the Senior Class responded to a questionnaire distributed to all seniors during their final spring semester. From 1974-1980, a similarly high proportion responded, but seniors were not surveyed until one year after graduation. In 1984, seniors were once again surveyed during their final spring semester, with a response rate of 76%. In 1985, seniors were surveyed one year after graduation, with a response rate of 78%.

** In some years, the total percentages do not add to 100% because of rounding.

Source for all tables: OIR Senior Studies 1968-1985

Table 2
Field of Graduate Study and Percentage Attending Graduate School for all Seniors
Spring 1968 to Spring 1985

	Arts & Sciences				Professional					Total** Attending Graduate School	
	% Humanities	% Social Sciences	% Natural Sciences	% Total A & S*	% Law	% Medicine	% Business	% Total Professional*		%	#***
1968	NA	NA	NA	18	14	12	4	33	-	51	512
1969	NA	NA	NA	17	12	11	3	28	-	45	446
1970	NA	NA	NA	16	13	13	2	30	-	46	426
1971	6	5	4	16	15	12	2	35	-	51	567
1972	7	4	3	14	18	16	1	40	-	54	590
1973	5	4	3	13	10	12	2	29	-	41	471
1974	5	4	2	12	16	14	2	36	-	48	582
1975	5	4	5	14	18	17	3	46	-	61	738
1976	7	3	4	15	17	14	4	41	-	57	715
1977	4	3	4	11	17	13	3	39	-	51	648
1978	4	5	4	13	18	13	3	39	-	52	677
1979	3	3	5	12	16	11	2	34	-	45	572
1980	5	2	5	13	15	13	2	35	-	48	605
1984	4	1	4	9	9	12	1	26	-	36	452
1985	4	2	3	10	8	11	1	24	-	34	428

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* The divisional percentages within Arts & Sciences and Professional Schools do not always add to the totals due to the attendance of students at other Graduate or Professional Schools that are not listed here.

** In some years, the percentages attending Art & Sciences Graduate School and Professional Schools do not add to the total percentage because of rounding, multiple attendance, or unknown field of study.

*** Extrapolated from the percentage of survey respondents applied to total degrees granted.

Table 3
Field of Graduate Study for Seniors Attending Graduate School, Spring 1968 to Spring 1985

	Arts & Sciences				Professional			
	% Humanities	% Social Sciences	% Natural Sciences	% Total A & S*	% Law	% Medicine	% Business	% Total Professional*
1968	NA	NA	NA	35	27	24	8	65 - 100%**
1969	NA	NA	NA	38	26	24	7	62 - 100%
1970	NA	NA	NA	32	28	29	5	68 - 100%
1971	12	11	7	31	30	24	4	69 - 100%
1972	12	8	5	26	33	29	2	74 - 100%
1973	13	10	8	30	25	29	6	70 - 100%
1974	11	8	4	25	33	28	3	75 - 100%
1975	8	7	8	23	30	28	4	77 - 100%
1976	12	6	7	26	30	25	7	74 - 100%
1977	8	7	7	22	33	25	6	78 - 100%
1978	7	10	8	25	34	24	6	75 - 100%
1979	7	7	11	26	36	23	4	74 - 100%
1980	12	5	10	27	31	27	4	73 - 100%
1984	10	4	10	25	26	34	2	73 - 100%
1985	13	5	10	29	25	32	2	71 - 100%

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* The divisional percentages within Arts & Sciences and Professional Schools do not always add to the totals due to the attendance of students at other Graduate or Professional Schools that are not listed here.

** In some years, the percentages attending Art & Sciences Graduate School and Professional Schools do not add to 100% because of rounding, multiple attendance, or unknown field of study.

Table 4

Types of Employment for Seniors Choosing Employment
Spring, 1968 to Spring, 1985

	% Education	% Business/ Finance	% Industry	% Gov't.	% Social Work	% Communi-cations	% Health Fields	% Manual Work	% Fine Arts	% Law Related	% Not Employed	% Self Employed	% Other & Undec.		% Total
1968	32	27*	N/A	N/A	29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	12	=	100 **
1969	25	27*	N/A	N/A	21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	27	=	100
1970	27	24*	N/A	N/A	11	N/A	N/A	N/A	N/A	N/A	N/A	N/A	38	=	100
1971	19	23*	N/A	10	5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	44	=	100
1972	17	16*	N/A	14	5	6	N/A	N/A	6	N/A	N/A	N/A	36	=	100
1973	16	32*	N/A	9	1	8	N/A	N/A	1	N/A	N/A	N/A	34	=	100
1974	15	25*	N/A	9	2	11	4	5	6	3	3	N/A	17	=	100
1975	16	23	5	13	1	8	3	2	9	4	5	N/A	15	=	100
1976	16	27	2	8	2	13	4	2	9	4	4	1	8	=	100
1978	12	30	15	9	3	11	1	2	6	3	1	3	4	=	100
1979	11	31	12	12	3	10	1	1	8	4	2	2	3	=	100
1980	9	32	16	9	1	12	2	1	5	6	2	2	3	=	100
1984	9	21	15	6	3	5	1	0	11	3	N/A	1	24	=	100
1985	12	28	16	5	2	9	2	1	8	8	3	2	5	=	100

* Percentages given reflect employment in both business and industry.

** In some years, the percentages choosing different types of employment do not add to 100% because of rounding

POST-BACCALAUREATE PLANS OF THE CLASSES OF 1984, 1985, AND 1986

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In 1984 and 1985, approximately 1.9 million men and women were awarded bachelor's degrees from colleges and universities across the United States (National Center for Education Statistics, 1984). From an institutional perspective, the postgraduate plans and behaviors of recent graduates deserves analysis. The number of individuals who intend to pursue graduate or professional education, either immediately or in the near future, has significant implications for the planners of various graduate programs. In addition, the percentage of graduates who plan to immediately enter the work force is of interest to career guidance and placement personnel.

The primary objectives of this paper are to present the findings of a study which examined the post-baccalaureate plans of students who graduated from Tufts University during the past three years and to identify differences among distinct categories of students. Various questions that are examined include: (1) Are there significant differences between the employment choices of students who graduate from the College of Engineering and those who graduate from the College of Liberal Arts? (2) Do men and women differ in their pursuits of graduate and professional training? and (3) Do students tend to pursue graduate training or employment in fields that are directly related to their undergraduate majors?

The primary sources of data for this study are the information gathered from survey instruments that were administered to members of the 1984, 1985 and 1986 graduating classes. The questionnaire data provided information on undergraduate background, graduate and professional school enrollment status, type of academic program, degree sought, reasons for directly pursuing graduate training, reasons for postponing graduate training, employment status, employer information, assessment of the employment situation, and job strategies employed. The response rates for the Classes of 1984 and 1985 were 40 and 41 percent, respectively. For the Class of 1986 the response rate increased dramatically and reached almost 100 percent.[1]

The distribution of respondents from the Colleges of Liberal Arts and Engineering was relatively consistent over the three years examined and closely mirrored that of the actual population. For the Class of 1984, 21.1% of the respondents were Engineering majors and 77.4% were Liberal Arts majors. For the Class of 1985, 22.3% of the respondents were from Engineering and 77.7% were from Liberal Arts. For the Class of 1986, 16.3 percent were Engineering majors and 83.7 percent were from Liberal Arts. For the period examined, the percentage of female respondents was higher than males (56.1%, 52%, and 51.5%, respectively). This distribution was somewhat higher than that of the total graduating classes.

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[1] This dramatic increase in the response rate can be explained primarily by changes made in the collection procedures. Before students were allowed to obtain their tickets for graduation related activities, they were required to complete a survey. Prior to the Class of 1986, students were asked to return the questionnaire by mail and completion was not a prerequisite for obtaining tickets.

FUTURE PLANS

Members of the Classes of 1984, 1985, and 1986 were asked what their plans were for the year following graduation (Table 1). For all three years, the majority of students indicated that they intended to be employed full-time. The next most popular option was full-time graduate study. A smaller proportion, than we originally anticipated, indicated that they were pursuing some combination of graduate study and employment.[2]

Engineering and Liberal Arts Differences

Analysis reveals that differences exist between the post-baccalaureate plans made by graduates of the Colleges of Engineering and Liberal Arts (Table 2). For both groups, the majority of students planned to be employed full-time. This proved to be consistent for the three years examined. However, a larger proportion of engineering majors (between 70% and 80%) than liberal arts majors (between 55% and 60%) indicated that they planned to be employed full-time. Not surprisingly, graduates with engineering backgrounds tended more often than Liberal Arts graduates to be employed in fields related to their majors.

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[2] When we first began this project we speculated that there would be a large percentage of each cohort that would be pursuing some combination of graduate school and employment. This proved to be less popular than we had anticipated. For the Classes of 1985 and 1986, less than ten percent of the graduates indicated that they would be pursuing some combination of graduate studies and employment. The only real exception to this pattern was Engineering graduates of the Class of 1984. For this specific cohort, 18 percent indicated that they were employed full-time and attending graduate school on a part-time basis.

In contrast, a larger percentage of liberal arts majors intended to attend graduate or professional school immediately after receiving their baccalaureates (Table 2). The proportion of liberal arts majors who indicated that they would pursue full-time graduate study immediately after graduation ranged from 32 percent of the Classes of 1984 and 1985 to 24 percent of the Class of 1986. In comparison, the percentage of engineering majors who indicated that they were pursuing full-time graduate education immediately after receiving the baccalaureate ranged approximately from 10 percent in 1984 to 14 percent in 1986.

Not only were graduates from liberal arts and engineering planning to attend graduate school at different rates, they were also pursuing varied graduate degrees. For those liberal arts graduates who were pursuing graduate or professional training, the fields of study most often mentioned were law and medicine (Table 3). For the three classes examined, well over twenty-five percent of those students who were attending graduate school (28.2%, 31.7%, 38.4%; respectively) indicated that they were pursuing a J.D. A slightly smaller percentage (19.8%, 22.8% 17.6%, respectively) indicated that they were pursuing an M.D. Of the remaining liberal arts graduates who were pursuing advanced studies immediately after graduation, most were pursuing some type of masters degree. In contrast, graduate programs that appealed to engineering majors were quite different. Engineering graduates tended to pursue Masters in Engineering degrees (80%, 35.7%, and 61.9% respectively).[3] Two additional fields that were popular with these graduates were business and medicine.

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[3] Engineering majors pursuing advanced degrees were similar to their counterparts pursuing full-time employment with respect of fields of interest. Like those employed full-time, a large percentage of these individuals sought graduate programs that were closely related to their undergraduate major.

Gender Differences

Analysis reveals that some differences exist between the postgraduate behaviors of men and women. For the majority of both men and women, their plans for the next year included having full-time employment (Table 4). However, in each of the years examined, a higher percentage of women indicated that they intended to be employed full-time. These differences were less pronounced for engineering graduates. Approximately the same percentage of male and female engineering graduates were employed full-time. Moreover, they tended to be pursuing careers in the fields of electronics and computers.

In contrast, a larger percentage of men intended to attend graduate or professional school immediately after receiving their baccalaureates. Approximately 20 percent of the women graduates were enrolled in graduate programs as compared to 30 percent of the men. This difference was more pronounced for liberal arts majors. For this group, approximately 25 percent of the women compared to 42 percent of the men were pursuing graduate studies.

For those pursuing graduate or professional training, a slightly higher percentage of men than women were pursuing medical or law degrees (Table 5). Masters degree programs appeared to be equally popular for men and women. For liberal arts majors, approximately the same percentage of men and women were pursuing professional training in law and medicine.

Future Educational Plans

For those who indicated that they were not pursuing graduates studies immediately after graduation, they were asked if they planned to attend graduate or professional school some time in the future. In addition, they were asked to identify the program of advanced study they were considering. While the majority of graduates indicated that they intended to work immediately after receiving their baccalaureates, these individuals appear to be considering additional education at some later date. The majority (approximately 90 percent of each graduating class) indicated that they intend to pursue graduate training in the future. Engineering majors more often indicated that they would definitely attend graduate or professional school in the future. Liberal arts majors were slightly more tentative. A high percentage indicated that they would probably attend in the future. In addition, a slightly higher percentage of liberal arts majors indicated that they probably would not attend graduate or professional in the future (Table 7). The future educational plans of men and women were quite similar. However, a slightly higher percentage of men indicated that they probably would not attend in the future (Table 8).

Of those individuals who indicated that they would pursue graduate or professional training in the future, the most popular program of advanced study under consideration was business. For the three years examined, over thirty percent of each graduating class (33.5%, 40.9% and 36.3%, respectively) cited this program. Law and engineering were the next most frequently cited fields of study that individuals were considering.

USES OF THE INFORMATION

While this paper has briefly summarized the post-baccalaureate plans of three graduating classes, it should be noted that the information obtained from these surveys have been used in a variety of ways in various sectors of the university.

The principle user of the information has been the career planning and placement center. Some information has been used to supplement the alumni network information base. It has also provided the staff with an overall view of the types of job-hunting strategies that are being employed by seniors. Another constituency that has used the data is the undergraduate admissions staff. They have used the information to provide prospective applicants with current information about the types of careers new graduates are pursuing as well as information concerning the graduate and professional schools that students are attending. In addition, specific information has been supplied to individual departments detailing the employers and graduate schools that their majors are involved with.

TABLE 1

PLANS FOR NEXT YEAR
TOTAL POPULATION

PLANS	CLASS OF 1984	CLASS OF 1985	CLASS OF 1986
FULL-TIME EMPLOYMENT	57.8%	62.6%	61.8%
FULL-TIME EMPLOYMENT/ PART-TIME STUDY	6.0%	2.5%	1.5%
FULL-TIME STUDY	27.3%	28.0%	22.2%
FULL-TIME STUDY/ PART-TIME EMPLOYMENT	1.7%	NA	0.2%
PART-TIME STUDY AND/OR WORK	3.2%	2.6%	4.9%
OTHER	4.1%	4.3%	9.4%
N =	469	446	1058

TABLE 2

PLANS FOR NEXT YEAR
ENGINEERING AND LIBERAL ARTS

	CLASS OF 1984		CLASS OF 1985		CLASS OF 1986	
PLANS	ENGINEER	LIB ARTS	ENGINEER	LIB ARTS	ENGINEER	LIB ARTS
FULL-TIME EMPLOYMENT	69.4%	55.2%	79.8%	57.6%	76.4%	58.9%
FULL-TIME EMPLOYMENT/ PART-TIME STUDY	18.4%	2.5%	4.0%	2.0%	3.4%	1.1%
FULL-TIME STUDY	10.2%	31.6%	13.1%	32.3%	14.1%	23.8%
FULL-TIME STUDY/ PART-TIME EMPLOYMENT	1.0%	1.6%	NA	NA	0.0%	0.2%
PART-TIME STUDY AND/OR WORK	1.0%	3.9%	0.0%	3.4%	1.1%	5.6%
OTHER	0.0%	5.2%	3.0%	4.6%	4.6%	10.3%
N =	98	364	99	347	174	884

TABLE 3

DEGREES SOUGHT
ENGINEERING AND LIBERAL ARTS

	CLASS OF 1984		CLASS OF 1985		CLASS OF 1986	
DEGREE	ENGINEER	LIB ARTS	ENGINEER	LIB ARTS	ENGINEER	LIB ARTS
MA	0.0%	13.7%	0.0%	11.9%	4.8%	17.6%
MS	80.0%	8.4%	35.7%	5.9%	61.7%	2.5%
MBA	10.0%	14.5%	21.4%	5.0%	0.0%	5.7%
MASTERS *	0.0%	7.0%	14.3%	13.0%	4.8%	6.3%
Ph.D.	3.3%	6.1%	7.1%	5.9%	4.8%	8.8%
JD	0.0%	28.2%	0.0%	31.7%	4.8%	38.4%
MD	6.7%	19.8%	14.3%	22.8%	19.0%	17.6%
DMD	0.0%	2.3%	0.0%	2.0%	0.0%	1.9%
DVM	0.0%	0.0%	0.0%	2.0%	0.0%	1.3%

* ALL OTHER MASTERS DEGREES, INCLUDED M.ED. MIA, MPA, MSW

TABLE 4

PLANS FOR NEXT YEAR
GENDER DIFFERENCES

	CLASS OF 1984		CLASS OF 1985		CLASS OF 1986	
PLANS	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES
FULL-TIME EMPLOYMENT	55.4%	59.5%	58.1%	66.7%	57.7%	65.7%
FULL-TIME EMPLOYMENT/ PART-TIME STUDY	5.9%	6.1%	1.9%	3.0%	1.6%	1.5%
FULL-TIME STUDY	33.3%	22.7%	33.5%	22.9%	27.3%	17.4%
FULL-TIME STUDY/ PART-TIME EMPLOYMENT	0.5%	2.7%	NA	NA	0.0%	0.4%
PART-TIME STUDY AND/OR WORK	1.5%	4.6%	1.9%	3.4%	5.9%	4.1%
OTHER	3.4%	4.5%	4.7%	3.9%	7.6%	11.0%
N =	204	264	215	231	513	545

TABLE 5

DEGREES SOUGHT
GENDER DIFFERENCES

	CLASS OF 1984		CLASS OF 1985		CLASS OF 1986	
DEGREE	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES
MA	7.1%	14.8%	6.9%	16.0%	10.3%	24.7%
MS	23.5%	19.8%	6.9%	14.0%	14.0%	2.7%
MBA	16.5%	11.1%	10.3%	2.0%	6.5%	2.7%
MASTERS *	1.2%	9.9%	13.8%	12.0%	2.8%	11.0%
Ph.D.	3.5%	7.4%	5.2%	8.0%	6.5%	11.0%
JD	28.2%	19.8%	29.3%	24.0%	37.4%	30.1%
MD	18.8%	14.8%	22.4%	22.0%	20.6%	13.7%
DMD	1.2%	2.5%	3.4%	0.0%	0.0%	4.1%
DVM	0.0%	0.0%	1.7%	2.0%	1.9%	0.0%

* ALL OTHER MASTERS DEGREES, INCLUDED M.ED. MIA, MPA, MSW

TABLE 6

FUTURE EDUCATIONAL PLANS
TOTAL POPULATION

PLANS	CLASS OF 1984	CLASS OF 1985	CLASS OF 1986
DEFINITELY WILL ATTEND	45.5%	44.4%	42.8%
PROBABLY WILL ATTEND	43.5%	49.7%	46.3%
PROBABLY WILL NOT ATTEND	10.3%	5.6%	10.4%
DEFINITELY WILL NOT ATTEND	0.3%	0.3%	0.5%

TABLE 7

FUTURE EDUCATIONAL PLANS
ENGINEERING AND LIBERAL ARTS

PLANS	CLASS OF 1984		CLASS OF 1985		CLASS OF 1986	
	ENGINEER	LIB ARTS	ENGINEER	LIB ARTS	ENGINEER	LIB ARTS
DEFINITELY WILL ATTEND	54.3%	42.9%	49.4%	42.7%	42.4%	42.9%
PROBABLY WILL ATTEND	38.6%	45.7%	45.7%	51.1%	48.9%	45.3%
PROBABLY WILL NOT ATTEND	7.1%	10.5%	4.9%	5.8%	7.9%	10.9%
DEFINITELY WILL NOT ATTEND	0.0%	0.5%	0.0%	0.4%	0.7%	0.5%

TABLE 8

FUTURE EDUCATIONAL PLANS
GENDER DIFFERENCES

PLANS	CLASS OF 1984		CLASS OF 1985		CLASS OF 1986	
	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES
DEFINITELY WILL ATTEND	47.0%	44.8%	43.1%	45.6%	40.5%	44.7%
PROBABLY WILL ATTEND	41.0%	45.4%	48.9%	50.3%	47.8%	45.2%
PROBABLY WILL NOT ATTEND	12.0%	8.6%	7.3%	4.1%	11.2%	9.7%
DEFINITELY WILL NOT ATTEND	0.0%	0.6%	0.7%	0.0%	0.6%	0.5%

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ATTRACTING LOW INCOME STUDENTS TO A HIGH PRICED COLLEGE: DOES LOAN POLICY MAKE A DIFFERENCE?

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The growing dependence on loans to finance higher education has been a serious concern for educators and students. (See, for example, Kramer and Van Dusen, 1986, and Hansen, 1986.) The impacts of large debt on the initial choice between private and public colleges with very different price tags as well as career choice after graduation have been particularly worrisome to high-priced private colleges. Even though such colleges often have substantial endowments which contribute to educational funds even for non-aided students, their price tags are high relative to most family incomes. The Guaranteed Student Loan (GSL) program has provided a mechanism to make college more affordable, by delaying payment of part of the cost of college. Nonetheless, the prospect of leaving college with a debt of $10,000 or more may discourage students from attending a school expensive enough to require the student to borrow such a sum. Such a prospect might be particularly intimidating for a student from a family with low income.

In the Spring of 1984 Swarthmore College announced an experimental program to increase its attractiveness to students from families with lower income and more diverse educational background by giving aid packages which included a smaller loan component and a correspondingly larger grant component. The idea behind the program was to encourage students from families who have not traditionally attended high-priced private colleges to consider such colleges without being discouraged by the prospect of leaving college with a very large debt to repay. A second motivation for the program was to help students leave college without a loan so large they must decide on their postcollege plans on the basis of paying back that loan. With only a small loan, students should be freer to choose graduate school, teaching or other low-paying work rather than a high-paying job if they so desired.

The program has now been running for three years, and on the basis of that three years' experience something can be said of the effectiveness of the low loan program in attracting lower income students. The available data do not address the effect of the program on student choices of occupation after graduation.

Two hypotheses will be tested. First, the lower loan program should attract an increasing number of low-income prospectives and applicants. Second, the low loan program should increase the enrollment rate of accepted low-income applicants.

BACKGROUND

First, it is important to understand the context in which this program was undertaken. The College, whose annual budget for 1986-87 is just over $30 million, awarded about $5 million in grants.[1] The higher grants necessitated by the low loan program made up perhaps $500,000 of this amount. In recent years, on average, 47% of the student body has received need-based aid. Of those who do receive aid, the average aid package was $10,450 in 1986-87. Swarthmore has long had a policy of need-blind admissions with provision of financial assistance as needed: students are admitted on their merit, then their financial requirements are examined, and aid is given as needed to enable them to attend Swarthmore. Parents' contribution is calculated in accordance with guidelines about income, assets and demands on family resources. In addition, each year students are expected to contribute $900 ($1,000 for upper class students) from summer earnings and 35% of their personal savings or other assets. The financial aid offer is divided among outright grant, suggested student loan, and work opportunity during the school year. Although proportions vary, the standard school term work expectation is $800, and loans before the experimental program were set at $1,900 per year. The budget used to determine need includes tuition, room and board, required fees, and an allowance for travel round-trip between home and college.

The present program has not modified the way in which expected parental contribution is calculated. However, it has reallocated the aid package between grant and loan. Among most of the schools with which Swarthmore competes for students, the average student loan has been somewhere between $2,000 and $2,500 a year. In the initial year of the program, the loan component was reduced from $1,900 to $1,200 for most students and to $800 for students who were classified as especially needy. (In subsequent years the expected amount has increased modestly.) This reduction in the loan component over the course of four years of college represents a total indebtedness of $4,000-$5,000 less than would have been the case under the old higher loan system.[2]

ATTRACTING STUDENTS FROM LOW-INCOME AND LOW-EDUCATION FAMILIES

The first hypothesis about the impact of the low loan policy is that the number of interested low income students should have risen after 1983-84 as information about the low loan program became more widespread. In addition to sending brochures on the Financial Aid Program to potential applicants, Admissions officers have talked about the low loan program as a part of Swarthmore's efforts to attract well qualified students. Data on prospective applicants has been obtained from the College Board Admissions Testing Program (A.T.P.), for students who listed Swarthmore as a place to send their Scholastic Aptitude Test (SAT) scores.

The evidence from the past two years, while not conclusive, does not support the hypothesis that more low income students are interested in Swarthmore as a prospective college. While the number of prospective applicants increased by 5.8% between 1984 and 1985 (from 3,467 to 3,635), the proportion with parents' incomes below $30,000 actually varied from 27% to 26% of the group (below $20,000 grew just 5.4%). (See Table I.) Among students who actually applied to Swarthmore for admission and financial aid, the proportion with family income less than $30,000 also

TABLE I - Income Distribution of Prospective Swarthmore Applicants

	% of Prospective Applicants with Student-Reported Family Income Of		
Year	< $20,999	$21,000-30,000	all < $30,000
1984	14.8%	12.2%	27.0%
1985	15.3%	10.6%	25.9%
% change in number of students	+5.4%	-12.0%	-2.5%

Source: College Board ATP Summary Reports 1984, 1985 for students who considered applying for entry in Fall 1984 or Fall 1985.

TABLE II - Income Distribution of Enrolled Freshmen

	% of Enrolled Swarthmore Freshmen With Student-Reported Family Income Of		
	< $20,000	$20,000-30,000	all < $30,000
1981			
Swarthmore	8.1	11.6	19.7
Comparison group	13.4	15.3	28.7
1982			
Swarthmore	10.1	13.4	23.5
Comparison group	11.5	13.1	24.6
1983			
Swarthmore	10.6	13.1	23.7
Comparison group	11.1	12.5	23.6
1984			
Swarthmore	11.9	12.6	24.5
Comparison group	11.1	11.8	22.9
1985			
Swarthmore	5.7	7.5	13.2
Comparison group	8.5	9.3	17.8

Source: American Council on Education/UCLA CIRP Freshman Surveys. Comparison group is 4-year non-sectarian colleges and universities with very high selectivity. Years in the table are the years freshmen entered in the Fall.

declined, from around 17% in 1984 to around 12% in 1985 and 1986. (Those with family income less than $20,000 varied from 8% of all applicants in 1984, to 10% in 1985 and 5% in 1986.)[3]

Data from the American Council on Education's annual survey of Freshmen comparing Swarthmore Freshmen's family income to the family income of Freshmen at other highly selective four-year non-sectarian colleges and universities confirm the decline in low income family representation in the enrolled student body. (See Table II.) For both Swarthmore and the comparison group of colleges the proportion of Freshmen families with incomes under $30,000 was 23-24% from 1982 through 1984, but declined to 13% and 17% respectively in 1985. The percent with incomes under $20,000 was 10-11% for both in 1982-1984, declined to 5.7% (Swarthmore) and 8.5% (comparison group) in 1985. That is, Swarthmore's proportion of students from lower income families declined faster than the comparison group's. One year's change does not make a trend, but the direction of the change is opposite that which the lower loan program was designed to accomplish.

The willingness to take on educational debt was expected to be associated also with the educational background of parents.[4] Swarthmore has traditionally attracted students from highly educated families (Table IV) and includes among its student body a remarkable proportion of students whose parents are college professors. Data on the educational background of parents of prospective applicants and incoming freshmen is provided by the College Board ATP summary reports and the American Council on Education freshmen surveys. Tables III and IV summarize some data on parents' educational background. Among prospective applicants for Fall 1984 and 1985, the percentage of parents who had completed high school or less dropped from 9.2% to 8.3% of the fathers and from 14.6% to 13.2% of the mothers. These changes are small but in the opposite direction from that hypothesized. This lack of progress in recruiting students with relatively less educated parents is also indicated by background of enrolled students. Over the past four years the comparison group of all highly selective non-sectarian colleges and universities has had virtually

TABLE III - Education of Parents: Prospective Swarthmore Applicants

% of Parents with:	1984	1985
High school diploma or less		
father	9.2	8.3
mother	14.6	13.2
Business or trade school		
father	2.6	2.3
mother	4.2	4.6
Some college		
father	8.9	7.7
mother	15.0	14.2
Bachelor's degree		
father	15.9	15.9
mother	23.7	24.7
Some grad. prof. school		
father	7.5	7.6
mother	11.6	12.1
Grad. prof. degree		
father	56.0	58.3
mother	31.0	31.0

Source: College Board ATP Summary Reports 1984, 1985 for students who considered applying for entry in Fall 1984 or Fall 1985.

TABLE IV

Swarthmore and Comparison Group of Freshmen Parents' Education Levels

	1982		1983		1984		1985	
Father's Education	Sw.	Compar.	Sw.	Compar.	Sw.	Compar.	Sw.	Compar.
≤ hs grad	8.0%	10.2%	7.4%	11.1%	8.2%	10.9%	5.9%	10.5%
college grad	14.2	23.2	16.1	23.6	15.4	23.3	13.9	21.8
some grad	8.3	5.9	7.0	5.8	6.7	5.6	6.3	6.0
grad degree	62.0	51.8	62.9	50.0	64.3	50.1	68.4	51.5
Mother's Education								
≤ hs grad	12.5	15.5	11.7	15.9	10.8	15.6	7.8	15.4
college grad	27.5	34.4	28.9	33.5	26.1	33.2	29.7	33.1
some grad	11.6	7.7	9.0	7.3	9.2	7.5	9.9	7.7
grad degree	32.1	23.4	39.6	23.2	41.4	24.4	39.2	25.3

Source: American Council on Education/UCLA CIRP Freshman Surveys. Comparison group is 4-year non-sectarian colleges and universities with very high selectivity. Years in the table are the years freshmen entered in the Fall.

no change in proportion of parents with a high school education or less (Table IV). In the same years the proportion of Swarthmore fathers with no more than high school has fluctuated from 8% to 6% with no clear trend. Percent of mothers in this group has dropped steadily from a little over 12% to under 8% over the same period. On the whole, the proportion of Swarthmore freshmen coming from families with less education hasdropped somewhat while the proportion of students with less educated parents has remained unchanged for freshmen from a comparison group of colleges.

Again, the recent decline in proportion of students from families with non-college-educated parents does not support the hypothesized effect of the low loan program.

THE ROLE OF LOANS AND AID PACKAGES

The effects of the low loan policy were also evaluated using data from three surveys of accepted applicants and data from the Admissions and Financial Aid offices. Surveys were distributed to all accepted applicants in the spring of 1984, 1985 and 1986, and the results were analyzed to assess the enrollment decision.[5] Components of aid packages for students who enrolled at Swarthmore were compared with aid components for those who went elsewhere. (See Table V.) For both groups of students Swarthmore's loan offer was significantly lower than the loan offered by the alternative school. However, the difference in loan offers was smaller for students who went elsewhere, an average difference of $618 for students who attended other schools compared to a difference of $750 for students enrolled in Fall 1986. Furthermore, Swarthmore's total grants per student were significantly higher only for the enrolled group in both 1985 and 1986. That is, Swarthmore grants were not higher than grants from the chosen alternative for students who went elsewhere. The average parental contribution required by Swarthmore was significantly higher than that required by their chosen school for students who went elsewhere in Fall 1985 and 1986. For students who enrolled at Swarthmore in 1986, the sum of parental contribution and loan was significantly lower than the sum of these immediate and postponed costs at their second choice school.

TABLE V

Comparisons of Aid Packages

1985

	All Students(175)		Low Income Students(53)**	
Swarthmore less alternate offer for:	Chose Swarthmore	Chose Alternate	Chose Swarthmore	Chose Alternate
Parental Contribution: Difference in means	-63	574*	-971	-3
Loans Difference in means	-751*	-618*	-942*	-723*
Grants Difference in means	2,703*	-66	3,647*	649
Total Cost (Parent Contribution plus loans) Difference in means	-1,206*	-44	-2,139*	-771

1986

	All Students(317)		Low Income Students(66)**	
Swarthmore less alternate offer for:	Chose Swarthmore	Chose Alternate	Chose Swarthmore	Chose Alternate
Parental Contribution: Difference in means	-82	1,542*	-925	947
Loans Difference in means	-210	-292*	-246	-632*
Grants Difference in means	2,525*	-438	4,756*	-96
Total Cost (Parent Contribution plus loans) Difference in means	-559	1,237*	-1,340*	-407

Figures in parentheses are number of students included in that calculation of mean values. Years in table are the years freshmen entered in the Fall.

* Difference significant at the .05 level.

**Low income is here defined as parental income less than $30,000.

Source: Survey of admitted students, spring 1985 and 1986.

This comparison seems to show less concern for the amount of the loan and more concern for the required parental contribution in choosing a college.

Since the lower loan program was intended especially to attract lower income students whose families might be reluctant to take on large debts, similar comparisons of aid were made for this group of students (columns 3 and 4 of Table V). For the low income students who enrolled at Swarthmore in Fall 1985 and 1986, on average, Swarthmore's total cost was significantly lower and Swarthmore's grant significantly higher than the alternate school's. In 1986 the amount of loan was also significantly lower at Swarthmore than at the second choice school. For students who chose to enroll elsewhere, Swarthmore's loan offer was significantly lower but there was no significant difference in parental contributions or in grants in either year. Thus, although Swarthmore's loans were lower for each group of students, the low loan does not appear to be significant in explaining enrollment or the choice of another school even for lower income students.

Well qualified students from lower income families are generally offered large aid packages at several of the institutions which accept them. These students are usually choosing among schools which provide some financial aid. The financial aid package, then, although clearly essential for lower income students who wish to go to an expensive private college, does not necessarily make the difference in the choice between alternative institutions. Of students with family incomes below $30,000, only 14% in 1986 and 17% in 1985 of those who went to other schools chose to attend colleges with tuition and other costs lower than Swarthmore's.

CONCLUSIONS

Yield rates (that is, the proportion of admitted applicants who enroll) have fluctuated over the past several years for the lowest income groups. They rose by 12 percentage points in the first year of the program, for students who enrolled in the Fall of 1984, fell by 20 percentage points for 1985 and have risen again by 26 percentage points in 1986. This evidence is inconclusive, but the expectation that the program would have have a cumulative effect of attracting lower income students as publicity spread seems not to be fulfilled. It may be that a longer time is required for such news to become really available to the group that we are trying to attract, but so far at least the evidence is not encouraging.

The results of this study are not conclusive. Proportions of students from families with lower income and less-educated parents declined over the initial year of the program. Analysis of student aid packages with low loans suggests that the amount of parental contribution expected makes a difference in students' decisions whether to attend one college or another. However, lower expected loan amounts do not apparently make a difference in this decision.

Swarthmore is sharing this information about its loan program to encourage all colleges to look for ways to make high quality higher education available to students from low-income families. The lower loan program is just one of many programs colleges could institute to achieve this goal. Swarthmore is continuing to explore ways to increase enrollment of students with diverse backgrounds.

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FOOTNOTES

[1] The annual budget figure is net of financial aid expenditures.

[2] Swarthmore, like other schools, will make a reduction in the loan and a reduction in the school's grant if a student later receives an outside scholarship. The student also has the option of borrowing more than the suggested amount, up to the maximum allowed under the G.S.L. program.

[3] The percentage of U.S. families with income under $20,000 fell from 39% in 1983 to 34% in 1985 (the percentage with income under $30,000 fell from 61% to 54% over the same period), while median family income in current dollars rose from $24,500 in 1983 to $27,735 in 1985. This change is smaller than the change in income of applicants. (Data from U.S. Bureau of the Census.)

[4] There are always some families with very low incomes whose background is not needy in the sense of needing to be convinced of the value of a private liberal arts education. For example, individuals who have chosen to become carpenters or farmers after finishing their Ph.D.'s or law degrees may have low family income, but they are certainly aware of the value of a good education and would presumably not be deterred from sending a child to a private college by the prospect of taking on a substantial debt.

[5] Response rates to these surveys were : 1984-55%, 1985-63%, 1986-76%.

Regression Analysis of Factors Related to Acceptance to Medical School

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Studies of the medical school admission process have examined applicant characteristics that can be used to predict success in medical school courses, in the National Board examinations, in clinical performance, and in residencies[1]. We present here an analysis of applicant characteristics to determine which optimize the chances of success in medical school applications. This analysis is based upon the 189 students of Franklin and Marshall College who were recommended for admission to medical school by the College's Pre-Healing Arts Committee for the five years, 1981-1985.

During this period a total of 211 students requested a recommendation from the Pre-Healing Arts Committee; 189 students (90%) were recommended, and of these, 167 (88%) were accepted to one or more medical schools. Of the 32 students who were not recommended 12 were accepted to medical school. The recommended students majored in a number of disciplines and 15 had majors in two departments. The majority of the students (88%), however, majored in the sciences: biology, 93; chemistry, 49; math, 15; physics 10. The grade point averages (GPA) of the recommended students were distributed as follows: 1% below 3.0; 10% between 3.0 and 3.2; 28% between 3.2 and 3.4; 31% between 3.4 and 3.6;

17% between 3.6 and 3.8; 13% between 3.8 and 4.0[*]. The verbal SAT scores for the recommended students ranged from 330 to 740 with a mean of 589; the math SAT scores ranged from 520 to 800 with a mean of 651. The total MCAT score ranged from 41 to 81 with a mean of 60.5. Eighty-six of the recommended students had permanent residences in Pennsylvania, 48 in New Jersey, 28 in New York, 11 in Maryland, and 16 in other states.

The means for the variables used in the regression analysis are given in Table I and can be categorized in three main groups: SAT scores, GPA, and MCAT scores. Specifically, the variables are: verbal SAT (VSAT) and math SAT (MSAT) scores, overall GPA, math and science GPA (MS) on a 4.0 grade point scale, MCAT subsection scores (biology (BIO), chemistry (CHM), physics (PHY), science problems (SP), reading (RDG), and quantitative (QNT)) and the MCAT total score. The number of interviews granted and the number of acceptances obtained were normalized by dividing by the number of applications. The means for these normalized parameters, INT and ACC, are also given in Table 1. The number of applications for the 189 recommended students ranged from 1 to 39 with a mean of 14. The means for all variables were higher for the group accepted to medical school, and it is worth noting that the difference in math and science GPA between the accepted and not-accepted groups is greater than the difference in the overall GPA.

Table 2 shows the correlation coefficients for the four strongest bivariate correlations for each of the variables listed in Table 1. Of particular interest is

[*] In a 1984 grade survey of 20 comparable colleges (e.g., Amherst, Bates, Carleton, Grinnell, Haverford, Oberlin, Pomona, Swarthmore, and Williams) Franklin and Marshall had the second smallest percentage of A's (19.8%), the 12th largest percentage of B's (40.8%), the 4th largest percentage of C's (23.4%), and the 2nd largest percentage of D's (6.5%) awarded for the 1983-84 academic year.

the set of correlations for the normalized number of interviews (INT) and acceptances (ACC). Interviews correlate most strongly with the math and science GPA ($r=0.61$), second with the overall GPA ($r=0.57$), and third with the total MCAT score ($r=0.53$). Similar correlations were obtained for normalized acceptances.

INT and ACC were used as the dependent variables in multiple regression with all of the other variables listed in Table 1. The results of these analyses are given in Table 3 for all recommended students ($N=189$). Only four variables with the highest significance levels are shown in the Table. For all recommended students the regression with normalized interviews had a multiple correlation coefficient of 0.68 and a significance below the 0.001 level (above the 99.9% confidence level). The math and science GPA (MS) was the most significant variable in the regression with a coefficient of 0.338 MS + 0.0372 PHY + ... + constant). The standardized coefficient of 0.430 for MS indicates that one standard deviation change in this variable contributes more than the other variables to a change in INT. When the effects of the most significant variable, MS, have been accounted for, the second most significant variable is PHY, the third is VSAT, and the fourth is CHM.

When the normalized acceptances are used as the dependent variable, the four most significant independent variables are GPA, SP, QNT, and TOT. However, the coefficients of SP and QNT in the regression equation are negative. Thus, according to this analysis, the higher the score in the science problem and quantitative sections of the MCAT, the smaller the number of interviews per application. These negative coefficients are probably a result of the interdependence (multicollinearity) of the variables representing the MCAT subsections. For example, Table 2 shows the high correlations between TOT and BIO, CHM, PHY, and SP. Similar problems are encountered with the regressions for the accepted students.

In order to remove the effects of multicollinearity, the regression was performed for INT using only one variable from each of the three general categories of independent variables. The variables selected from the SAT, GPA, and MCAT categories were those that were most significant in the full multiple regression. In each case, the independent variable in the SAT category was VSAT; in the GPA category either GPA or MS was used; in the MCAT category, SP, PHY, and TOT were used because of their occurrence as significant variables in the full regression analyses. The regressions were performed only with INT* because it is probably the dependent variable most directly related to the undergraduate characteristics used in this study. Because students are never accepted to medical school without an interview, a variety of factors that are difficult to quantify--personality, extracurricular activities, oral expression, etc.--intervene between the interview and acceptance.

Table 4 shows the results of the regressions with only three independent variables. The most significant of the four different regressions contained the variables VSAT, TOT, and MS, with MS being the most significant variable with the highest coefficient, and TOT the second most significant variable. In all of the three independent variable correlations, all of the coefficients are positive, indicating that most of the colinearity has been removed. The second most significant correlation resulted from the use of VSAT, PHY, and MS. The correlation with VSAT, SP, and MS was also significant at the 0.001 level.

Conclusions

All analyses indicate that the most significant predictor of success in obtaining interviews at medical schools among the cohort group investigated was the math and science grade point average. Second in significance was a group of

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*Similar results were obtained in correlations with ACC.

MCAT variables that were similar in significance. The total MCAT score accounts for a slightly greater percentage of the remaining variability in number of normalized interviews than the science problem or physics subsections. The strong correlation of the total MCAT score with the science problem and physics sections and the significance of these subsections in the multiple regressions suggest that the ability to solve problems and deal with concepts in the physical sciences is an important determinant of success in obtaining interviews. SAT scores do not contribute very heavily to the variability in the number of normalized interviews.

Despite the greater emphasis on a broad, general undergraduate preparation by many medical schools, the results of this study clearly indicate the importance to the medical school applicant of mastery of the concepts and analyses required in mathematics and the sciences.

Acknowledgements

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Table I. Means for All Variables

Variable	All Recommended[a]	Accepted[b]	Not Accepted[c]
VSAT	589	591	575
MSAT	651	654	630
GPA	3.49	3.52	3.30
MS	3.44	3.48	3.14
BIO	10.2	10.4	8.82
CHM	10.6	10.8	9.0
PHY	10.5	10.7	8.8
SP	10.3	10.5	8.6
RDG	9.3	9.4	8.9
QNT	9.5	9.6	8.6
TOT	60.5	61.5	52.9
INT[d]	0.434	0.476	0.110
ACC[e]	0.193	0.217	0

[a] N = 189; [b] N = 167; [c] N = 22; [d] Interviews/Applications; [e] Acceptances/Applications

**Table II. Four Highest Single Variable Correlations with R>0.32
All Recommended Students (N=189)**

VSAT	RDG (0.36)
MSAT	QNT(0.59) TOT(0.52) PHY(0.44) CHM(0.41) SP(0.41)
GPA	INT(0.57) TOT(0.50) CHM(0.49) PHY(0.48)
MS	INT(0.61) PHY(0.54) TOT(0.52) CHM(0.51)
BIO	TOT(0.70) SP(0.57) PHY(0.51) CHM(0.44)
CHM	TOT(0.77) SP(0.77) PHY(0.66) MS(0.51)
PHY	TOT(0.83) SP(0.77) CHM(0.66) MS(0.54)
SP	TOT(0.86) PHY(0.77) CHM(0.77) BIO(0.57)
RDG	TOT(0.49) QNT(0.41) VSAT(0.36)
QNT	TOT(0.67) MSAT(0.59) PHY(0.42) SP(0.41) RDG(0.41)
TOT	SP(0.86) PHY(0.83) CHM(0.77) BIO(0.70)
INT	MS(0.61) GPA(0.57) TOT(0.53) PHY(0.52)
ACC	GPA(0.44) MS(0.42) TOT(0.33) CHM(0.33)

Table III. Multiple Regression Results for All Recommended Students[a]

Dependent variable = INT

R = 0.68 F(11,177) = 13.8 ρ = 0.000

Variable	B	β	p
MS	0.338	0.430	0.006
PHY	0.0372	0.276	0.153
VSAT	0.000286	0.0736	0.220
CHM	0.0223	0.149	0.367

Dependent variable = ACC

R = 0.47 F(11,177) = 4.6 ρ = 0.000

Variable	B	β	p
GPA	0.248	0.321	0.071
SP	-0.0283	-0.281	0.230
QNT	-0.0180	-0.177	0.409
TOT	0.0160	0.636	0.420

[a] Coefficients (B), standardized coefficients (β), and significance level (ρ) given for only the four most significant variables in regression with VSAT, MSAT, MS, GPA, BIO, CHM, PHY, SP, RDG, QNT, and TOT.

Table IV. Multiple Regression with Three Independent Variables Dependent Variable = INT, All Recommended Students

	Parameter for Regression			Parameter for Variables				
Correlation	R	F	p	Variables	B	β	t	p
1.	0.66	48	0.000	MS	0.367	0.466	7.2	0.000
				TOT	0.00930	0.273	4.1	0.000
				VSAT	0.000257	0.0663	1.2	0.24
2.	0.64	43	0.000	GPA	0.431	0.410	6.3	0.000
				TOT	0.0108	0.318	4.8	0.000
				VSAT	0.000152	0.0392	0.68	0.51
3.	0.63	42	0.000	MS	0.423	0.537	8.3	0.000
				SP	0.0203	0.148	2.3	0.022
				VSAT	0.000395	0.102	1.8	0.073
4.	0.66	48	0.000	MS	0.367	0.466	7.1	0.000
				PHY	0.0355	0.263	4.0	0.000
				VSAT	0.000430	0.111	2.0	0.044

MARKETING STRATEGIC PLANNING
A PANEL DISCUSSION

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We are forever building the church and forgetting the creed

- Emerson

Strategic Planning is most frequently viewed as a headache by the faculty and rank and file administrators at Colleges and Universities. They see the process as producing more work and with little, if any, payoff.

How can acceptance of strategic planning be improved? This paper presents a case study of an approach used at Monroe Community College that has met with modest success. Basically, Monroe used marketing techniques to develop and to sell its strategic planning process.

This paper will include the following elements:

1. A definition of what is meant by marketing
2. A definition of what is meant by strategic planning
3. A Case Study of how Monroe implemented strategic planning using marketing techniques

What is Marketing?

The best way to predict the future is to create it

- Drucker

Figures 1 presents the marketing process at Monroe. The crucial elements for strategic planning purposes are the situation analysis, establishment of goals and the development of strategies. The model represented in Figure 1 is used by many community colleges that have become more active in formal marketing.

Figure 2 is from Philip Kotler's book Marketing for Non-Profit Organizations. It is a taxonomy of possible levels of responsiveness. Most strategic planning processes are unresponsive when it comes to marketing; a few are casually responsive. At Monroe, it was decided to be at least highly responsive.

How the marketing process specifically impacted the planning approach will be discussed later in this paper.

What is Planning?

> Management's role is to see the company not as it is, but as it can become
>
> \- John Teets
> CEO Greyhound

Van Ausdale listed eight elements of planning as follows:

1. A means of exercising self-control
2. A process which enables the institution to cope with and adapt to present and future realities
3. A systematic process which enables the institution to both maintain and change its postures in fulfilling its mission
4. The leadership aspect of administration
5. A process of obtaining and providing information for decision making

6. Thinking things through before acting
7. A learning process for institutions, i.e., helps cope, adapt, and exercise self-control
8. A process enabling redesign and renewal of institutions

A MARKETING PROCESS FOR MCC

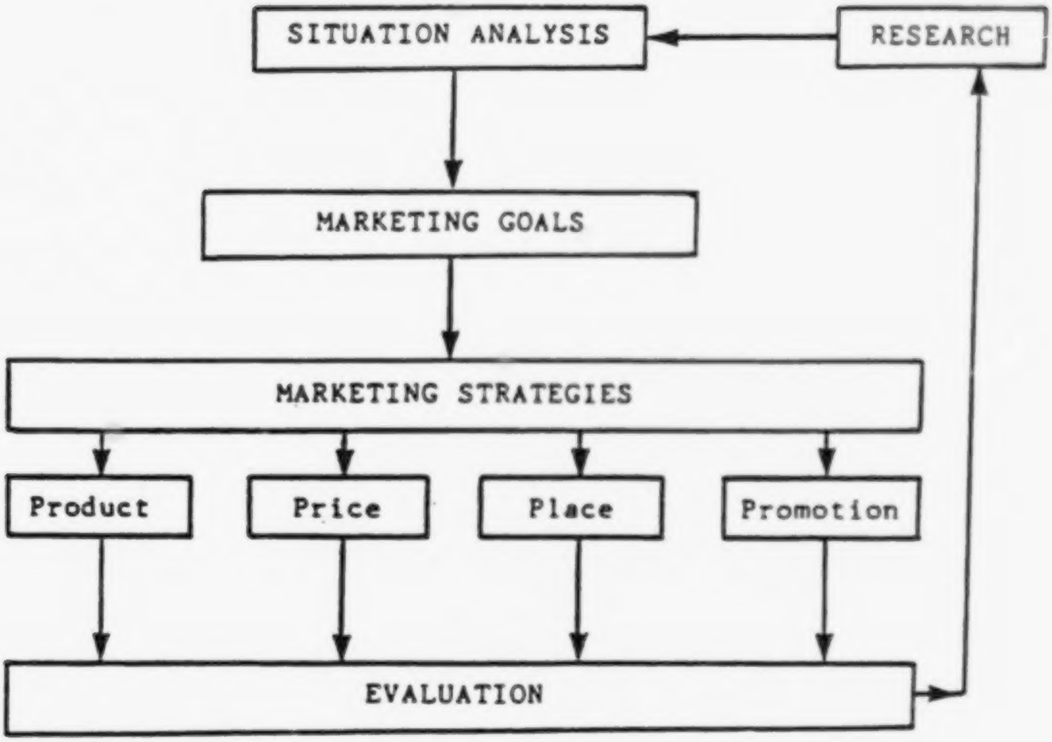

Figure 1

RESPONSIVENESS

THE UNRESPONSIVE ORGANIZATION

1. It does nothing to measure the needs, perceptions, preferences, or satisfaction of its constituent publics.
2. It makes it difficult for its constituent publics to place inquiries, complaints, suggestions, or opinions.

THE CASUALLY RESPONSIVE ORGANIZATION

1. It shows an interest in learning about consumer needs, perceptions, preferences, and satisfaction.
2. It encourages consumers to submit inquiries; complaints, suggestions, and opinions.

THE HIGHLY RESPONSIVE ORGANIZATION

1. It shows a keen interest in learning about the needs, perceptions, preferences, and satisfaction of its constituents and relies on systematic information-collection procedures such as formal opinion surveys and consumer panels.
2. It encourages its constituents to submit inquiries, complaints, suggestions, and opinions and creates formal systems to facilitate this, such as suggestion boxes, comment cards, ombudsmen, and consumer committees.
3. It sifts the incoming information and takes positive steps where called for to adjust products, services, organizational policies, and procedures.

THE FULLY RESPONSIVE ORGANIZATION

1. It formally audits at regular intervals the needs, perceptions, preferences, and satisfaction of its constituent publics.
2. It encourages its constituent public to participate actively in the affairs of the organization and to vent through formal and informal systems their complaints, suggestions, and opinions.
3. It wholeheartedly accepts the will of the organization's members as expressed through the ballot box or their representatives.

Figure 2

He further stated that planning can make significant contributions to colleges:

1. Improved college management
2. Improved coordination of instructional, facilities, and financial planning
3. Improved resource allocation decisions
4. Improved institutional climate
5. Budget preparation
6. Improved academic decisions
7. Framework for modifying on-going activity

Van Ausdale also stated that effective planning is demonstrated by the presence of the following characteristics in the planning process.

1. Long-Range
2. Continuous
3. Comprehensive
4. Flexible
5. Program-Related
6. Information-Based
7. Linked to Resource Allocation
8. A Process, Not a Product

Lastly, Van Ausdale asserted that effective planning requires the following actions at a college.

1. Commitment from Top-Level Leadership
2. Visibility and Emphasis Within the Organization
3. Clear Understanding of Institutional Mission and Go
4. Cooperation Between Different Levels of the Institutional Hierarchy
5. Broad Participation by Constituent Groups
6. Development of Institutional Priorities
7. Linkage Between Academic and Financial Concerns
8. Accurate and Timely Information

At Monroe Community College strategic planning has six features:

1. Academic strategic decision making means that a college, school, or university and its leaders are active rather than passive about their position in history.
2. Strategic planning looks outward and is focused on keeping the institution in step with the changing environment.
3. Academic strategy-making is competitive, recognizing that higher education is subject to economic market conditions and to increasingly strong competition.
4. Strategic planning concentrates on decisions, not on documented plans, analyses, forecasts, and goals.
5. Strategy-making is a blend of rational and economic analysis, political maneuvering, and psychological interplay. It is therefore participatory and highly tolerant of controversy.
6. Strategic planning concentrates on the fate of the institution above everything else.

At Monroe, the strategic planning process has six expected outcomes:

1. Information from the analysis of the external environment
2. Information from the analysis of the internal environment
3. Recommended planning strategies

4. Statement of goals
5. Statement of objectives
6. Information on how Advancement work is organized

The Situation Analysis: Receptivity to Strategic Planning

I am afraid of the dark and suspicious of the light

- Woody Allen

Edward A. Rugg of Kennesaw College has developed a test to measure receptivity to strategic planning, Figure 3, that is based on George Keller's book Academic Strategy. When Monroe's leadership took the test, the results were not entirely positive nor were they entirely surprising.

The College conducted a situation analysis to determine why its receptivity to strategic planning was minimal. The College found a series of institution-wide barriers to planning in general.

1. Planning was perceived to be a top down process
2. Planning was perceived to produce extra work
3. Campus personnel saw planning as a waste of time
4. Few campus people had an understanding of the concepts
5. Past planning had not produced short-term payoffs
6. Some personnel thought planning implied a dissatisfaction with present work performance
7. Campus Power Brokers perceived that limitations would be placed on their power and operational freedom through planning

HOW DO YOU GRADE YOUR INSTITUTION AND DEPARTMENT ON KELLER'S SIX CHARACTERISTICS OF STRATEGIC PLANNING*

Your Evaluation (A,B,C,D, or F grades)		
Institution	Department	Characteristics of Institutions (Departments) Engaged in Strategic Planning
____	____	Proactive Disposition The institution (or department) is active rather than passive about its place in history; it actively seeks to shape its destiny rather than be shaped by external forces; it continually strives to be proactive rather than reactive.
____	____	Responsiveness to the Changing Environment The institution (or department) continuously monitors and is sensitive to relevant external forces in its environment; its direction and objectives are shaped as a result of balancing external with internal factors; it anticipates and is responsive to change in its environment and welcomes adaptation.
____	____	Competitive Stance The institution (or department) is highly competitive; it constantly assesses its comparative advantages relative to other institutions (or departments) and seeks to improve and build on those; it has a strategy for establishing its "positions" in the higher education market.
____	____	Decisiveness The institution (or department) is action-oriented; the development of plans, analyses, forecasts and goals is expected but is not the ultimate objective—decisive action is; there is a strong sense of movement toward institutional goals and objectives.
____	____	Amalgamation of the Rational, Political, & Psychological Institutional (or departmental) action is often guided by a blend of rational, political, and psychological considerations; issues are decided not simply on the basis of rational facts and figures or emotion and politics but rather the amalgamation of all such factors—the results are rationally grounded in the internal and external factual realities and are also psychologically and politically convincing.
____	____	Commitment to the Institution and its Vision for the Future There is a strong commitment to the future survival and triumph of the institution; what is good for the long-term vitality of the institution (or department) takes higher priority over short-term gains and special interests of departments, programs and individuals; personnel share a vision for the future success of the institution (or department).
____	____	Overall Grade on these Six Characteristics of Strategic Planning

Figure 3

8. Many saw an incongruence of desirable and feasible goals
9. Planning was associated with undesirable conditions (declining enrollment, limited resources, retrenchment)

Campus misperceptions regarding strategic planning:

1. It is a production of a blueprint
2. It is a set of platitudes
3. It is the personal vision of the president or board of trusteees
4. It is a collection of departmental plans, compiled and edited

The planners themselves had some problems that had to be overcome. As a rule, Monroe found out the following things about planners:

1. They don't understand campus culture
2. They have difficulty adjusting to ambiguity
3. They don't understand political aspect of planning
4. They have limited understanding of decision making
5. They have difficulty in adjusting to non-business-like practices of the campus
6. They have a penchant for detail
7. They do not have an understanding of marketing

Monroe's situation analysis did yield some signs of hope for strategic planning. Several strengths were identified, such as:

1. Strong Campus Culture
2. Shared Values
3. A History of Participation
4. Strong Enrollment Situation

5. Strong Financial Position
6. Strong College Program
7. Vital Community Economy
8. Good Research Base for Planning

In addition, Monroe had many of the characteristics of an effective organization.

1. Purpose and Direction
2. Performance Standards
3. Reward and Recognition
4. Participation and Teamwork
5. Coordination and Cooperation Among Different Areas
6. Formal Support Systems
7. Human Resource Development
8. Relationship to External Environment

Marketing Goals Regarding Strategic Planning

Plans are Nothing. Planning is Everything.

- Dwight D. Eisenhower

After the situation analysis was completed, Monroe adopted a strong marketing approach to selling strategic planning.

The marketing goals identified were as follows:

1. Widespread participation
2. Widespread understanding
3. Concentrate on helping others to be change agents
4. Create "new possibilities" in an organization by assisting people to rediscover their own personal power
5. Create an environment that enables the organization to spot and solve its own problems

To accomplish the goals, Monroe engaged in the following promotional techniques:

1. Create sense of individual participation
2. Use reward system (create heroes and heroines)
3. Fertilize the grapevine (use the network)
4. Celebrate successes
5. Use ritual and ceremonies
6. Understand the culture to change the culture
7. Use the political system

Some of the specific marketing activities in which the College engaged in to sell planning were:

1. Use of Newsletters
2. Campus-based Focus Groups
3. Faculty Leader as Principal
4. Key to Accreditation
5. Small Group Meetings
6. Demonstrated Budgetary Payoff
7. Quality Publications
8. Quality Key Events
9. Rewarded Participation
10. High Presidential Profile
11. Used Ritual
12. Celebrated Success

What MCC Learned

Habit is habit, and not to be flung out of the window by anyone but coaxed downstairs a step at a time

- Mark Twain

The marketing approach has produced modestly successful results. Monroe is committed to continuing the strategic planning process. It is also committed to continuing to sell the concept.

Specifically, Monroe has learned the following from its approach to strategic planning.

1. Marketing Approach Worked
2. Presidential Support is Essential
3. Commitment to Reallocate Resources
4. First Unplan
5. Use Plan as a Simple Compass
6. Present Information in Useful Formats
7. Plan in Pencil. Use Erasers
8. Plan is not Predicting the Future and Designing Last-Step Approach
9. Planning is Active
10. Continuing Process is Crucial
11. Those Who Use the System Should Design It

PROVIDING FOR THE NEEDS OF HANDICAPPED STUDENTS IN A POSTSECONDARY ENVIRONMENT

Gerard G. Walter and William A. Welsh

INTRODUCTION

The growth of postsecondary education since 1945 has been unprecedented in U.S. history. Returning World War II veterans, large numbers of whom might not otherwise have gone to college, entered universities and colleges from 1945 to 1950 in large part because of federal legislation commonly known as the "GI Bill." In the 1950's community colleges began to develop, opening college doors to large numbers of individuals who would not otherwise have had access to higher education.

During this same period, the growth of higher education was fostered by changes in societal attitudes regarding college attendance. The launching of Sputnik, the goal to put a man on the moon, and the civil rights movement, resulted in the emergence of concerns regarding access, quality and choice. Access to postsecondary education, and choice of school by individuals, initially centered on the issue of college opportunities for children from families with low incomes and minorities. The passage of section 504 of the Rehabilitation Act of 1973, as amended in 1974, provided federal protection regarding access by handicapped individuals to higher education.

> No otherwise qualified handicapped individual in the United States...shall, solely by reason of his handicap, be excluded from the participation in, be denied the benefits of, or be subjected to discrimination under any program of activity receiving federal financial assistance.
>
> The United States Congress:
> Section 504 of the Rehabilitation
> Act of 1973. P.L. 93-112[1]

The efforts of American society to provide access and choice in higher education has markedly influenced the numbers of handicapped persons seeking postsecondary education. To illustrate this point, data are displayed in Figure 1 concerning the enrollment of hearing-impaired persons in colleges in

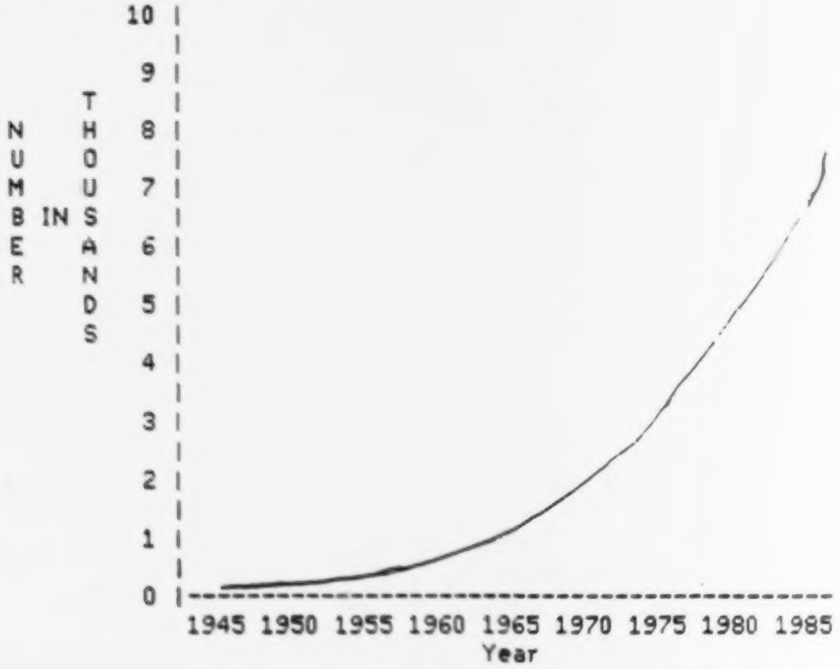

FIGURE 1. Number of disabled students estimated to be enrolled in U.S. colleges and universities from 1945 to 1985.

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[1] In its original version, Section 504 defined "handicapped individual" only with respect to employment. This was subsequently amended under the Rehabilitation Act Amendments of 1974 (P.L. 93-516) to include education.

the United States since 1945. The growth during this time was the result of the baby boom after World War II, at least two significant rubella epidemics during the same time, and changes in societal attitudes toward providing educational opportunities to people with disabilities. While we do not have good data for other handicaps, there is no reason to expect that the proportional increase in numbers of enrollments is any less.

As the 1990's approach, the rate of growth depicted in Figure 1 is expected to diminish, as is the growth of higher education generally. However, the need for postsecondary educational programs for handicapped people will not lessen in a country that is moving from a "manufacturing" to an "information" based economy. Technicians; professionals in business, industry, health and education; engineers; and supervisory personnel will be in greater demand. As a result, colleges and universities will need to provide more than access to postsecondary education, they will need to insure that handicapped individuals are accommodated in the social and educational environment of college.

The growth in numbers of handicapped individuals in colleges and universities tends to indicate that the issue of access is being addressed. However, despite this apparent success, it is estimated that approximately 75 percent of deaf persons enrolling in colleges and universities in the U.S. withdrawal without graduating. If this generalization can be made to other handicapped groups then the question must be asked whether the environment has sufficiently been adapted to accommodate to the special educational needs of handicapped individuals. This question is more important in an era of declining enrollments when reducing the number of withdrawals coupled with finding new markets are two strategies for maintaining enrollment quotas. The purpose of this paper is to discuss some approaches to accommodating handicapped persons (in a sense a new market) at the postsecondary level in order to increase the probability of their graduating.

A Theoretical Starting Point

The theoretical model presented by Spady (1970), elaborated by Tinto (1975) and tested in various environments by Pascarella and Terenzini (Pascarella & Terenzini, 1979, 1980; Pascarella & Chapman 1983, Theophilides, Terenzini & Lorang 1984) provides an explanatory predictive theory of the persistence/withdrawal process that can be applied for use with handicapped college students. The theory posited by Tinto (1975) considers persistance, primarily, a function of the quality of a student's interactions with the academic and social systems of an institution. That is, students come to a particular institution with a range of background traits (achievements, communication skills, personality traits, etc.). These background traits influence, not only how the student will perform in college, but also how he or she will interact with, and subsequently become integrated into, an institution's social and academic systems. Other things being equal, the greater the student's level of social and academic integration, the more likely he or she is to continue at the particular institution.

Depending on the nature of the impairment, handicapped students will have some unique difficulties being integrated into the social and academic mainstream of college life. Consider as examples the isolation of the hearing-impaired person who cannot hear a lecture, use a telephone, or interact with peers; or the mobility handicapped person who cannot negotiate the library stacks or attend a bonfire rally; or the blind person who must rely on imagination to visualize the relationships on the professor's overheads, or the action on the basketball court. Thus, while the handicapped individual may meet all the minimal academic requirements for admission to college, we must question whether the environment has accommodated to the special needs of the handicapped individual in order to provide some level of social and academic integration. What we are saying, is that while the intent of the law to provide access is being met, the questions still exists whether handicapped individuals continue to remain isolated both socially and educationally from the mainstream. If the theory of Tinto is accurate, and these individuals are not being integrated, then attrition rates will be much higher than for the non-handicapped individual.

Data for one handicap

These authors know of only one study which attempted to assess attrition rates of handicapped persons in colleges. Such studies are difficult because there tends generally to be no good and consistent record keeping about handicapped individuals in postsecondary education such as the legal requirements which exist at the elementary and secondary level. Thus, even the known numbers tend to be estimates rather than exact counts. The one study reported here is from a survey of postsecondary programs for deaf students in North America conducted in the fall of 1985 by Gallaudet College and the National Technical Institute for the Deaf at the Rochester Institute of Technology (Rawlings, et. al, 1986). Each college, university or technical school known to have a specially designated program for hearing impaired or deaf students was contacted and asked to complete a questionnaire focusing on information about enrollments in the program. Information obtained from 145 programs indicated an average rate of attrition for hearing-impaired students from college is about 71% of an entering class. This figure varies from a low of about 61% for Diploma and Certificate programs to a high of 82% for programs offering primarily Associate degrees. Comparisons were made with published attrition rates for hearing college students which were about one-third lower (47%) than the figure for hearing-impaired people.

These data lead one to ask whether the rates of attrition for other handicaps are equally as high, and whether such a high level of attrition is acceptable. In order to address these issues we need, perhaps, to make the case that documentation of attrition rates for "special needs" groups would be a way for individual colleges and universities to proceed. Certainly such an approach has been carried out for the variable of race--why not for handicapped individuals. If attrition is to be truly addressed, its causes must be explored for groups known to have unusually high rates.

Handicapping Areas

Learning disabilities. The most obvious area of concern, which can lead to withdrawal from college, is lack of basic skills which enable a person to take advantage of the academic and social environment in college. We have spent a great deal of effort in many colleges and universities to accommodating to the learning difficulties of the foreign student, but what about the handicapped student who has a reading or language problem? Are special adjustments being made to assist in the transfer of information? We attempt to do this through the provision of a sign langauge interpreter or notetaker for the hearing-impaired but the provision of this service alone may not improve the persons ability to understand the content of a textbook or a lecture. The provision of lecture notes or sign language interpretation for lectures does not necessarily mean that the "achievement barrier" created by low reading and mathematics skills has been breached. It may be necessary to modify texts and instructional materials and provide a comprehensive battery of compensatory and remedial programs to accommodate the needs of such language handicapped persons. Thus, even though the language handicapped individual has access to the classroom, he/she may remain isolated both socially and educationally from the mainstream of the educational community.

Mobility problems. While most colleges and universities have provided ramps and elevators to assist the person with mobility problems to gain access to classrooms, laboratories and essential buildings, these by themselves may not serve to provide integration into the educational community. What about access to essential offices such as the registrar, financial aid or dean of student's office. These additional services are often overlooked when designing space. Consider also the common occurrence of temporary classroom changes. Often a mobility impaired person has taken a considerable amount of time to get to class only to discover it has been moved to another building that is so located to make his/her getting there on time impossible. Socially, mobility impaired persons have an even more difficult time taking part in the activities of campus life--many ad hoc activities such as going out to get a pizza, attending a sporting event, or just an informal meeting in the neighboring building require advanced planning and additional time to negotiate transport barriers. Such planning often serves to isolate the mobility handicapped person from the mainstream of student life activities in colleges and universities.

Communication. Communication handicapping conditions are any which hinder a person's receiving or sending information in a way commonly used in colleges or universities. This can include the person who has difficulties reading an assigned text, a deaf person who cannot hear the lecture, or the speech impaired, cerebral palsied person who cannot express his/her thoughts through the speech mechanism. Regardless of the nature of the handicapping condition, communication difficulties inhibit a person from using the avenues most often required for information transfer in college--lecture and reading. Often. access to the classroom is not a problem for these individuals, but integration into the questions and answers of the classroom is blocked. Even for the person with an interpreter, the delay imposed by an interpreter often keeps the hearing-impaired person a step behind the information flow--thus making question often seem out of place, or interrupting to the lecture. For the dyslexic who cannot read anything written on the board or overhead. Thus being able to understand the lecture, questioning anything about something displayed in written form is a guess at best. In the social arena problems are even more pronounced since there is almost total reliance on the spoken word to communicate, whether it be through the telephone, or face to face communication. Just taking part in a discussion in the dinning hall is probably very difficult for a person with a communicative handicap -- and since much socialization in our culture occurs over food -- these persons will tend to eat alone even when sitting at a table with other students.

We do not mean to imply that it is the responsibility of the college or university to make accommodations for all possible handicapped individuals. This is probably not economically feasible when one considers the diversity of handicapping conditions and the small numbers involved at any given school. What is important for this group, is to understand that the high attrition among the handicapped population in your school will increase the overall attrition rate within your institution. As institutional researchers we will need to be able to identify such groups of "high-risk" students. Unless we develop our data bases to be able to carry out the analysis by group we will not be able to identify which groups of students have a high attrition rate.

This, then, is a first step--developing our data base in order to identify handicapped students in the population.

After we have established the attrition rates for the various handicapped groups we can then proceed to decide what the university can do, if anything, to reduce the rate of attrition. One thing is to be sure that essential services of the university such as financial aid, counseling, learning development, and health services are communicated to all handicapped individuals. A recent Harris poll of disabled Americans indicates that most disabled persons are not familiar with some of the most widely available services. Such is probably the case within colleges and universities.

In summary unless we as institutional researchers are prepared to describe the dimension of enrolled handicapped persons, their attrition rates, and their use of essential services, then it will not be possible to address any potential problems for this minority group. It is the feeling of these authors, if we are to truly attack the problem of withdrawal from college, that we must begin to identify subgroups of the college population that have unacceptable rates of withdrawal, and move to meet the special needs of these groups.

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A DESIGN AND IMPLEMENTATION PLAN FOR A SELF-EVALUATION OF A STUDENT SERVICE PROGRAM

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Purpose

For the past five years at Nassau Community College departments have been undergoing self-evaluation. A five year plan was developed and implemented by the Office of Academic Program Study (APS). At the end of this cycle the Department of Student Personnel Services, counseling and student support services i.e. financial aid, student activities, career development (including transfer and placement), disabled student services, educational counseling, psychological services was called upon to undergo the process. While the standard process was applicable to this department's review, the instruments and the outcomes to be measured were not. After a search of the literature produced some helpful considerations, the APS staff decided to design its own plan for this and other student service areas at the college e.g. registrar, admissions, library, security, health services, bursar.

The following represents a "plan of action" that has at this writing been begun. The method section summarizes the steps and time-line. The objective is to involve the department in a formative review that will not create resistance and threat-orientated behavior and will help the department assess its future role vis-a-vis the mission of the institution. The department's self-evaluation report is the end product of the process. The report will be the work of a departmental steering committee selected by the members of the department. They will receive the data generated by four methodological steps indicated below, digest it and write a report. Their report will be submitted to an external committee comprised of the Vice President for Academic/Student Services, the Dean of Students, an Academic Senate representative, a representative of the Senate's Curriculum Committee, and an at-large faculty member. The three faculty are chosen from academic departments other than the Department of Student Personnel Services. The external committee provides objective feed-back to the department regarding recommended changes and an implementation schedule. Change is thus provoked and measured.

Method

A review of the literature indicated that a formative evaluation process was most appropriate for the Student Personnel Services Department at Nassau Community College. Several approaches were considered and evaluated by APS. Ultimately it was decided that a multi-faceted approach should be used. Questionnaire, interview, sampling and opinionnaire techniques were researched. (See reference list.) Based on a search of relevant literature the following five-part process was evolved.

A) Questionnaire (completed Summer 1986)

An instrument was designed to cover all of the functions performed by the Department of Student Personnel Services. The Department was free to add items. An instrument was ultimately created that contained 46 items. (Appendex A is the first page of the questionnaire.)

It was decided that each member of the department would be asked to respond to each item in two ways. First they would respond on a five-point scale to the perceived importance of the function and also on a five-point scale to their perception of how effectively their department performs the function. 36 SPS faculty responded (100%) and the following calculations were performed:

1. The average importance score for each function was calculated.
2. The average effectiveness score for each function was calculated.

N.B. a) Not applicable or non-responses were scored as zeros.

b) The maximum score was 4.0 and the minimum was 1.0.

3) A discrepancy score was calculated for each item by subtracting the average score for the importance of each item from the average score for the effectiveness for the same item.

4) The difference scores were then arranged in descending order from greatest to least difference. The 12 items with the greatest difference of discrepancy score were as follows:

Conducts a program of coordinated services for students experiencing academic difficulties. (-1.78)

Assessess on-going and emerging needs of students in order to implement appropriate services. (-1.65)

Conducts a program of coordinated services for students experiencing personal-developmental difficulties.(-1.61)

Modifies its organizational structure when it is necessary. (-1.58)

Participates in the carrying-out of coordinated services for foreign students. (-1.55)

Provides outreach activities by each unit e.g. through publicity, innovative programmitical approaches, and satisfied recipients of the services. (-1.55)

Strives to achieve the highest level of professionalism for the department. (-1.54)

Conducts on-going evaluation and supervision of its staff. (-1.51)

Maintains a system of data collection that will provide objective information on the services provided to students. (-1.46)

Reviews periodically a space utilization plan for the delivery of departmental services. (-1.45)

Conducts counseling services for academically deficient students. (-1.33)

Provides in-service training for members of the department. (-1.20)

B. Interview (to be administered November 1986)

1) It was decided that to follow-up issues raised in the questionnaire phase of the review process each member of the SPS faculty would be interviewed. The interviews will be conducted by a professional interviewer-evaluator hired on a consultant basis. He will conduct the interviews, report on each, and provide general observations on the reactions in general of the department.

2) Using the 12 items identified in the survey step a script was drafted. The following script was developed. The decision was to use a standardized, open-ended interview technique to elicit reactions without directing the respondents. Since individual respondent identification was not necessary, the interview reports would not indicate an identification. (Appendex B is the Interview Script.)

C. Opinionnaire - December 1986

An instrument was developed to elicit responses from students who received student services to measure their usage, level of satisfaction, strength of need, whether the need was met, feelings about the availability and the way in which the services were carried out and to solicit comments about additional services and improvement of existing services. The Office of Academic Program Study will do its annual survey of recent (December 1985, May 1986 and August 1986) graduates and of students who have completed at least 60 credits at Nassau. They will include copies of the opinionnaire.

In addition a sample of currently attending Nassau students will be selected and surveyed with the same instrument. The responses will be data entered and analyzed by computer. (Appendex C is the Opinionnaire)

D. Data (by the end of Spring 1987)

The departmental steering committee will receive the survey data, including discrepancy analysis, the results and reports provided by the interviewer. When APS completes its analysis of the opinionnaires, it will forward the results to the steering committee. In addition the following data will be made available to the steering committee.

1) Reports from recent graduate and former student surveys.
2) All data reported from a Student Opinion Survey which involved 1200 Nassau students attending in the Spring 1985 semester.
3) All SPS periodic client contact counts for the 1985-1986 year and for Fall 1986.
4) All department monthly and other annual reports.
5) Any other available data maintained by the department that the steering committee deemed appropriate.
6) Any other institutional data requested by the department.

E) Report - (during Fall 1986 and Spring 1987)

Using the above information, the departmental steering committee will receive and analyze the data indicated in Step 4. It will endeavor to assess the current functioning of the department and make recommendations for change and improvements. The report of the steering committee will be due to the external committee by early Fall 1987. This committee will review the data and the steering committee's recommendations and comment on the thoroughness and accuracy of the committee's findings. The external committee will make its written recommendations to the steering committee as to what plans should be implemented and on what time line by December 31, 1987.

The next cycle of review will begin with the evaluation of the implementation plan.

The following outline will be provided as the structure of the steering committee's report.

A. Departmental Objectives: What are the objectives of the department as perceived by: department members; students; other members of the campus community? How do the objectives relate to the directions currently being taken by the College?

B. Services Description: How do the key services and functions of the department relate to the implementation of these objectives? In what ways are such services as advisement and academic support, career development, support for the disabled, financial counseling, student development, and psychological counseling important to: the department; the students; members of the campus community?

C. Service Performance: What are the current levels of performance of the services which reveal the outcomes actually being achieved e.g. satisfaction levels, service utilizations, and staff perceptions of services?

D. Service Evaluation: Evaluate the extent to which the performance of services is consistent with the expectations of the campus community and the department. For example:

1. Are the objectives of the department clearly understood by the members of the department? Are they reflected in the activities regularly performed by the department?
2. Are the services meeting the needs of the students? Are they meeting the expectations of the teaching

faculty, the administration and the members of the department?

3. Is the current structure of the department appropriate for meeting the needs of the campus community? Are other alternatives possible? What are the advantages and disadvantages of the alternatives?

4. Is the current schedule for providing services sufficient? Should more services be offered in the evening? Should services be offered on Saturday morning; should all departmental offices be open from 8 AM to 6 PM daily? How should additional hours, if deemed necessary, be provided?

E. Recommendations: Draw conclusions about major impediments to full realization of program objectives and specific modifications to be implemented for improved program performance. For example:

1. What services need to be added; deleted; changed?
2. Are there supportable recommendations with regard to departmental structure? Is the role of the unit coordinator viable as presently constituted? Should it be changed?
3. Are there supportable recommendations for increasing the availability of services to students on a daily basis? on a weekly basis?
4. Should more time (and money) be spent on in-service training? Should greater emphasis be placed on providing specific kinds of training for counselors? What areas should be emphasized? What new services would result?

Results

At the onset of the review process, a committee external to the department was established and began to function. Comprised of the Vice President for Academic/Student Services, the Dean of Students and faculty representatives from: the Academic Senate, the College-wide Curriculum Committee and a member chosen from the faculty at-large, this committee's charge was to monitor the department's review process i.e. understand the mechanics and possible outcomes. Upon completion of the review, the internal steering committee is required to analyze the data collected and report their findings to the external committee.

The external committee is expected to review the process, the data collected and most importantly the findings of the department. The external committee will provide a parallel and independent evaluation of the reported data and will make recommendations for the improvement of the department's services. The external committee's intention will be discussed with the department prior to its writing a final report. The report will contain:

A) recommended program modifications
B) an implementation time-line
C) a plan for assessing the impact of program modifications

Annual department reports to the Dean will address the progress being made on the program modifications that emanate from the review. These reports will form the starting point for the next formative review cycle in approximately five years.

Implications

Since the process was designed for use at Nassau Community College, it will not necessarily fit the needs and circumstances of other institutions. However, the process by which it was evolved and how it will be modified for other student service areas at our institution should be of interest and use by other institutions. It is with this in mind that this proposal is offered.

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Appendix A

QUESTIONNAIRE

For each of the functions listed below please check both the degree of importance that you attach to the function and how effectively you perceive that the Department accomplishes this function. Please respond to all items in this manner.

The Degree of Importance You Attach to the Function						How Effectively this Department Actually Accomplishes the Function				
UNIMPORTANT	MINIMALLY IMPORTANT	FAIRLY IMPORTANT	VERY IMPORTANT	NOT APPLICABLE	**THE DEPARTMENT OF STUDENT PERSONNEL SERVICES:**	INEFFECTIVE	MINIMALLY EFFECTIVE	FAIRLY EFFECTIVE	VERY EFFECTIVE	NOT APPLICABLE
☐	☐	☐	☐	☐	1. Provides outreach activities by each unit e.g. through publicity, innovative programmitical approaches, and satisfied recipients of the services.	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	2. Makes available career information.	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	3. Advises and guides students through the process of producing student publications e.g. Vignette, Ottonian.	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	4. Helps students find part-time and full-time employment.	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	5. Conducts on-going orientation programs for new students to provide them with necessary information and social opportunities.	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	6. Provides psychological counseling assistance to students who seek it.	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	7. Helps students to define their career objectives.	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	8. Strives to achieve the highest level of professionalism for the department.	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	9. Conducts counseling services for academically deficient students.	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	10. Maintains and operates a College Union.	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	11. Maintains a system of data collection that will provide objective information on the services provided to students.	☐	☐	☐	☐	☐
☐	☐	☐	☐	☐	12. Participates in the process of academic advisement.	☐	☐	☐	☐	☐

INTERVIEW SCRIPT

I. NEW SERVICES

A. What new services or modifications of present services would you suggest in order to better meet the needs of our students?

   1) to whom should they be offered?
   2) by what unit(s) should the service(s) be offered?

B. Should there be integration among units in the implementation of these services?

C. If yes, whose responsibility should it be to assure integration?

II. HELPING STUDENTS EXPERIENCING ACADEMIC DIFFICULTY

A. Should the Department of Student Personnel Services be expected to offer supportive services to students experiencing academic difficulty?

B. Can current services be improved? 1) If so, how? (timing, publicity, staffing)

C. How can teaching faculty be involved in the supportive process?

III. SPS DEPARTMENTALIZATION

A. Is the department one department or in reality is it several departments?

B. If several, how many?

C. What are they?

D. With regard to the effectiveness of supervision, what are your feelings about the present structure?

E. How would a change in structure affect the department's ability to provide services to our students?

IV. PROFESSIONAL GROWTH

A. Do you feel you receive the kind of feedback you need to continue to grow professionally?

B. Does the department have an effective evaluation instrument and process?

   1) Should it be more or less structured?

2) Should it be changed to provide more or less feedback for professional growth purposes?

V. WORK CONDITIONS

A. What would you like most to see changed about your work situation?

B. What would you like most to see maintained?

C. Do you believe that your present position is sufficiently professional?

D. By and large, do you feel that you are treated as a professional

1. Within the department?
2. By the rest of the college community?

VI. MEASUREMENT AND DATA COLLECTION

A. What is the best way(s) to measure the outcomes of the counseling process?

B. How can the current departmental methods for data collection be improved?

VII. PUBLICIZING SPS SERVICES

A. What are the best methods for publicizing SPS services on our campus?

B. Who should be responsible for SPS publicity?

C. Should SPS staff be involved in SPS publicity activities?

VIII. IN-SERVICE TRAINING

A. What kind of in-service training programs, if any, would you like to see offered to the SPS faculty?

B. Who should be responsible for the development and implementation of in-service training?

C. By and large, is present SPS staff qualified to conduct in-service training sessions?

1. If yes, should the staff be involved in training?

STUDENT SERVICES OPINIONNAIRE

The following items seek your reactions to services provided by counselors in the Department of Student Personnel Services. Please answer as honestly and as directly as possible. Your responses will be used to develop and improve the services offered to future students. Your comments at the end of the opinionnaire are also welcomed.

SECTION I - STUDENT SERVICES

For each service (or program) listed below, indicate in Part A whether or not you have used the service; in Part B IF you have used the service, check your level of satisfaction with the specific services.

Part A Usage			Part B Level of Satisfaction				
I have not used this service	I have used this service	Student Service or Program	Very satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
☐	☐	1. Academic advisement (as provided by a counselor)	☐	☐	☐	☐	☐
☐	☐	2. Personal counseling (for personal concerns and problems)	☐	☐	☐	☐	☐
☐	☐	3. Career Counseling	☐	☐	☐	☐	☐
☐	☐	4. Job placement (part-time and full-time)	☐	☐	☐	☐	☐
☐	☐	5. Financial aid services	☐	☐	☐	☐	☐
☐	☐	6. College-sponsored social activities	☐	☐	☐	☐	☐
☐	☐	7. Academic problem solving (probation, academic standing, poor completion of courses, etc.)	☐	☐	☐	☐	☐
☐	☐	8. Cultural program (guest speakers)	☐	☐	☐	☐	☐
☐	☐	9. Transfer counseling services	☐	☐	☐	☐	☐
☐	☐	10. Freshmen orientation program	☐	☐	☐	☐	☐
☐	☐	11. Career testing	☐	☐	☐	☐	☐
☐	☐	12. Services for disabled students	☐	☐	☐	☐	☐
		13. Student clubs and organizations					☐
☐	☐	14. Career Day	☐	☐	☐	☐	☐
☐	☐	15. Psychological counseling services	☐	☐	☐	☐	☐
☐	☐	16. Study skills	☐	☐	☐	☐	☐
☐	☐	17. Transfer Day	☐	☐	☐	☐	☐
☐	☐	18. Mature adult advisement services	☐	☐	☐	☐	☐
☐	☐	19. Student Government Association.	☐	☐	☐	☐	☐

SECTION II - STUDENT NEEDS ASSESSMENT

For each of the needs listed below please indicate the level of the need you had while attending Nassau by checking the appropriate box to the left of the statement. In addition for those items for which you had some degree of need, check the box to the right of the statement that indicates whether or not your need was met by counselors in the Department of Student Personnel Services.

Part A Strength					Part B Need Met	
No Need	Minor Need	Moderate Need	Strong Need	Need	Yes	No
☐	☐	☐	☐	1. Understanding and accepting myself	☐	☐
☐	☐	☐	☐	2. Determining a career direction	☐	☐
☐	☐	☐	☐	3. Correcting an educational weakness	☐	☐
☐	☐	☐	☐	4. Receiving necessary financial aid	☐	☐
☐	☐	☐	☐	5. Finding sources of reliable information	☐	☐
☐	☐	☐	☐	6. Developing friendships and social contacts	☐	☐
☐	☐	☐	☐	7. Receiving a good orientation upon entry to the College	☐	☐
☐	☐	☐	☐	8. Receiving proper academic advisement prior to registration	☐	☐
☐	☐	☐	☐	9. Having lounge space available on campus	☐	☐
☐	☐	☐	☐	10. Receiving student leadership training and experiences	☐	☐
☐	☐	☐	☐	11. Finding part-time employment while attending Nassau	☐	☐
☐	☐	☐	☐	12. Having the opportunity to work on a student publication	☐	☐
☐	☐	☐	☐	13. Receiving assistance in transferring to a 4-Yr. college	☐	☐
☐	☐	☐	☐	14. Finding a student club or organization to join in which I was interested	☐	☐
☐	☐	☐	☐	15. Finding counseling services available in the evening	☐	☐
☐	☐	☐	☐	16. Having a campus accessible to disabled students	☐	☐

SECTION III - SATISFACTION

Please indicate on the scale provided your degree of feeling with regard to each of the statements by circling the appropriate letter. If you feel a statement does not apply to your situation, please circle N/A.

		Strongly Agree			Strongly Disagree		
1.	I found student activities to be conveniently offered so as to encourage my participation.	A	B	C	D	E	N/A
2.	I was able to see a counselor when I needed one.	A	B	C	D	E	N/A
3.	I found the personnel working within the counseling areas to be generally courteous and friendly.	A	B	C	D	E	N/A
4.	I found the counseling services to be offered in a private, confidential and professional manner.	A	B	C	D	E	N/A
5.	It was my experience that counseling personnel have sufficient information to assist students with most problems.	A	B	C	D	E	N/A
6.	I found the counseling facilities to be comfortable.	A	B	C	D	E	N/A
7.	I think most students would turn to the counseling staff for help concerning their problems.	A	B	C	D	E	N/A

SECTION IV - COMMENTS

1. What additional student services would you like to see offered by the Department of Student Personnel Services?

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2. What existing services would you like to see modified?

3. In general, what could be done by the College to improve upon the delivery of services to students?

4. I would recommend that other students see a counselor for assistance for the following reasons:

5. General comments and suggestions.

Thank you for taking the time to complete this opinionnaire and returning it. Your valued input will be reflected in services provided to future Nassau students.

STUDENT WITHDRAWALS FROM COURSES AT A COMMUNITY COLLEGE

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INTRODUCTION

Since February of 1970, Brookdale Community College has continuously utilized a mechanism termed Withdrawal by Procedure (WBP) which allows a student to drop a course, without academic prejudice, at any time up to the midpoint of the course. The use of this procedure does not affect a student's grade point average nor his standing in academic progress reports but does result in forfeiture of tuition for the course if the drop occurs after a sanctioned "drop/add" period which is the first two weeks of a term.

As part of a larger effort to investigate and improve student retention, the college's Center for Educational Research initiated a study of the current reasons for the utilization of this withdrawal procedure and its impact on the student.

Although only a small proportion of students use this withdrawal procedure (about one-half of 1 percent in a given term) and the procedure is, by its nature, limited primarily to those students who can afford to employ it in terms of time and money, it was felt that these students could act as an additional focus group for exploring factors leading to student attrition. In contrast to the large body of attrition research traditionally concentrating on end-of-term withdrawals from college, this paper reports the findings of a study of midterm withdrawals from courses.

METHOD

During April 1986, shortly after the midpoint of a winter term, all students who used Withdrawal by Procedure were asked to participate in a mail survey. The questionnaire simply named the specific course for the student, asked why the student dropped the course, and requested information concerning the student's work status. Various individual background characteristics and academic record characteristics existing in the student data base were then related to the survey responses in a descriptive analysis.

Of the 520 students identified as having utilized Withdrawal by Procedure, 27 percent responded to the survey.

For one-quarter of the respondents, the course drop signaled the fact that the student was no longer enrolled in course work for the term. This small group (N=32) was recontacted by mail in July to determine intentions to return. Fifty percent of this smaller group responded to the additional survey.

FINDINGS

Gender, Age and Course Withdrawal

Table I indicates the gender and age of the students who utilized Withdrawal by Procedure by the type of course dropped. It is clear that the use of WBP is not heavy by the young student just out of high school (age 19 or less). The use of WBP is highest for men in the 20-25 year age range, the years of intense self-establishment within the labor market. For women, there is a bimodal phenomenon; the age categories of 20-25 and 36 or older see very heavy use of course withdrawal, especially with humanities courses and social science and business courses. In recent years, women have had double points of entry into the labor and education markets, at a fairly young age and again as "reentering" women.

The use of WBP does appear to vary with life phases marked by distinct major tasks, events and characteristic concerns as research on retention suggests.

Interest/Motivation and Course Withdrawal

Table II distributes the type of course dropped by the declared program (major) of the student respondent. For students with declared programs of study, there is very heavy use of course withdrawal within their stated areas of interest. The use of WBP does not appear to be related to general education requirements where students might be expected to have somewhat less motivation and interest to complete a course. Only humanities majors showed a plurality of drops (52 percent) in areas other than their stated area of interest.

Students with no declared program of study were most likely to drop courses in social sciences and business and the natural sciences.

TABLE I
GENDER AND AGE OF STUDENTS UTILIZING WBP BY TYPE OF COURSE DROPPED
(Percent)

Gender/Age of Student	Humanities Courses	Social Science and Business Courses	Natural Science Courses	All
Males, 19 or less	0	4	8	4
20-25	15	14	23	18
26-30	12	5	9	9
31-35	0	0	6	2
36+	3	4	13	7
all ages	30	27	58	40
Females				
19 or less	12	14	2	9
20-25	27	20	9	18
26-30	6	9	11	9
31-35	0	4	4	3
36+	21	26	9	18
all ages	66	73	35	57
Unknown respondent	3	0	6	3
Total	99	100	100	100
	(N=33)	(N=55)	(N=53)	(N=141)

TABLE II
TYPE OF COURSE DROPPED BY DECLARED PROGRAM (MAJOR) OF STUDENT
(Percent)

	Declared Program of Study (Major):			
Type of Course Dropped	Humanities	Social Science and Business	Natural Science	No Declared Program
Humanities Course	48	12	19	17
Social Science and Business Course	29	65	22	46
Natural Science Course	23	23	59	37
Total	100	100	100	100

In contrast to much of the research or retention, unclear career objectives or unclear educational goals do not directly relate to midpoint course withdrawals. Only 17 percent of our sample had no stated program goals; the vast majority of WPB utilizers did have declared programs of study.

Students' History of Course Withdrawal

The average course drop in the term under study was employed by the student approaching his thirtieth college credit. In only a small number of instances (7 percent) did the WBP contribute to the student's not gaining a single college credit.

The mean number of terms students were enrolled at the college when they employed the surveyed drop was 5.36.

Thirty-five percent of the responding students were in their first or second terms at the college when they employed the surveyed drop. The remaining 65 percent of the responding students were in their third to sixteenth terms at the college.

The responding students exhibited a considerable history of prior Withdrawal by Procedure utilization. Thirty-seven percent of the students who had enrolled at the college for three or more terms had a history of WBP use in prior terms. This proportion rose to 62 percent for students who had enrolled at the college for nine or more terms.

A marked tendency existed for drops to occur earlier in the student's credit history for social science and business courses and for natural science courses. The dropping of humanities courses tends to occur later in the student's credit history and later in the student's length of stay at the college. The average humanities course drop was employed when the student had been enrolled at the college for 5.88 terms and was approaching the accumulation of his 32th college credit. This may reflect the facts that business and natural sciences courses are more frequently taken for direct application to the "world of work" and are more apt to have complex and sequentially completed course learning experiences and requirements which must be balanced in a working person's life.

Grade Point Average and Course Withdrawal

Table III presents the grouped G.P.A.'s of the students who reported on their course drops by the type of course dropped. Overall, the studied drop tended to be used most often by the "B" students, those whose average hovered about 3.00.

For social science and business dropped courses, however, there was a marked tendency for the low G.P.A. student (2.75 or lower) to be the user of the withdrawal procedure. Fifty-three percent of these courses were dropped by low G.P.A. students but only 25 percent of these courses were dropped by students with G.P.A.'s higher than 3.00.

This pattern also occurred within natural science dropped courses but less noticeably.

For humanities dropped courses, however, the tendency of G.P.A. to be inversely related to WBP use did not exist -- there was almost an equal three-way split with high, low and mid-range students dropping these courses.

Overall, about 12 percent of the WBP users (3.7 or higher) could be considered for the Dean's List and only about 10 percent could be said to be doing only "C" level work consistently (2.00-2.25).

The pattern of WBP use being inversely related to grades with those courses most frequently taken for direct application to the work world indicates that withdrawal from courses is, indeed, used to protect the student's G.P.A. in his/her balancing act between work and studies.

TABLE III
STUDENTS' GRADE POINT AVERAGE BY TYPE OF COURSE DROPPED
(Percent)

G.P.A.	Humanities Courses	Social Science and Business Courses	Natural Science Courses	All Courses
3.76-4.00	13	9	14	12
3.51-3.75	0	2	8	4
3.26-3.50	9	7	8	8
3.01-3.25	16	7	8	10
2.76-3.00	31	22	20	23
2.51-2.75	9	11	10	10
2.26-2.50	13	15	20	16
2.01-2.25	0	9	4	5
2.00	0	9	4	5
Total	100	100	100	100

Stated Reasons for Course Withdrawal

Table IV presents the reasons all students gave for dropping their course. The totals in Table IV add to more than 100 percent since students gave more than one reason for their action.

TABLE IV
STUDENTS' STATED REASONS FOR MIDPOINT WITHDRAWALS FROM COURSES
(Percent)

College Environment Reasons	
Course content different from catalog description, from expectations, from what I was led to believe	7.8
Course too difficult, I found I lacked the prerequisites, achieved low grades on first unit test	15.6
Poor quality of instruction	13.5
Personality conflict with Instructor, did not like Instructor's attitude	4.3
Non-transferability of the course credits	0.7
Missed initial classes, lack of catch-up help, inability to catch up to other students	4.3
Subtotal, College Environment Reasons	45.4
Work/Home/Personal Environment Reasons	
Changed program major	4.3
Too many credits attempted for one semester, could not handle combined work loads of work and study, requirements took more time than available, conflicts with work schedule	59.5
Illness, family reasons	23.5
Other Work/Home/Personal Environment Reasons	0.7
Subtotal, Work/Home/Personal Environment Reasons	87.9
Transportation Difficulty	0.7

Although the division of stated reasons into college and non-college reasons may be somewhat arbitrary and some of the reasons possibly interrelated, the overwhelming picture which emerges from the students' responses is that work, home and personal environment reasons outweight, by approximately two to one, college environment reasons for dropping.

Students' stated reasons for withdrawal were powerfully associated with work status. Only a small minority (12.5 percent) of the responding students is not employed at all but 52 percent hold full time jobs. Seventy-nine percent of the work/home/personal environment reasons for dropping the course came from the busiest students; those working full time as well as those carrying a full time course load (even after the drop) and holding a part time job. The part time student who works full time was the most likely candidate to employ a course withdrawal, followed by the student still carrying a full time course load after the drop and holding a part time job.

Characteristics of the Non-enrolled

For one-quarter of the students surveyed, the sample drop meant that the student was no longer involved in course work for that term. The vast majority of this group worked full time and 53 percent were women with an average age of 34.4 years. The men in this small group had an average age of 28.8 years.

This group of students had enrolled for an average of 5.9 terms at the time of the drop, somewhat higher than the overall sample mean. As a group, they had amassed an average of 26.2 credits, somewhat less than the overall sample mean.

Fifty percent of this group responded to an additional survey regarding intention to return; 25 percent declared that they would enroll again, 25 percent had already done so, and the remaining 50 percent reported that job conflicts still kept them from enrolling.

SUMMARY AND CONCLUSIONS

As community colleges lose more and more of their very young students just out of high school and begin to add proportionately more and more adult learners who work, the colleges should expect to see a growing number of midcourse withdrawals. This survey documents that a Withdrawal by Procedure process generally functions as originally intended with these students, facilitating fairly easy exit and reentry to the community college and may be considered, in a broad perspective, as a retention tool.

Students withdrawing from courses are able to provide important targeted information for use in retention activities. Additionally, these students remind us once again of the powerful factors, extrinsic to the institution, which differentially affect student retention in nontraditional colleges.

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THE INFLUENCE OF STUDENT SATISFACTION ON PERSISTENCE

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INTRODUCTION

Enrollment declines projected for higher education in the 1980's have heightened interest in research on the correlates of attrition in an attempt to improve retention rates. Earlier studies at this college (Green and Morlock, 1978) and other universities sought to relate attrition to the entering characteristics of new students. Green and Morlock found that very few of the personality traits, goals or demographic variables they studied were important discriminators between persistors and withdrawals, except in the case of academic dismissals. The strongest relationship existed between high school achievement and/or indecision about choice of a college major and attrition. The work of Astin (1975) and studies summarized by Feldman and Newcomb (1970) recognized the need for assessing the college environment as a source of college attrition. Findings by Pascarella and Terenzini (1977 & 1980) supported Tinto's model of the important impact of the student's institutional commitment and degree of academic and social integration on their persistence in college. They concluded that "students' backgrounds and levels of academic and social integration are only a part of the picture of the dynamics of attrition/retention. Attention needs to be given to the joint influences of these considerations." Therefore the authors and a campus retention committee decided that assessment of the perceptions of the college environment by students after they enrolled at Plattsburgh were needed.

A mandate by the State University of New York for all Colleges and University Centers within the system to administer the Student Opinion Survey developed by the American College Testing Program (ACT) provided the opportunity to study the relationship between student satisfaction and persistence. Many of the 65 items of the survey were relevant to studies of attrition. There were items on academic satisfaction as well as satisfaction with many of the college's services and functions. With attrition research in mind, many of the twenty optional questions allowed by the survey focused on issues found or suspected to be related to persistence. The subsequent withdrawal or persistence status of the students surveyed was ascertained a year later, and responses to the survey of persistors and withdrawals were compared. Based on previous findings of the authors and others, withdrawals were subdivided into two groups, academic dismissals and voluntary withdrawals. Other researchers have found that the influence of social integration on academic success was more important in the freshman year (Terenzini and Wright, 1985). Because of the relationship between academic success and attrition, these factors were investigated separately for freshmen in the study.

Sample

The Student Opinion Survey was mailed to a random sample of 1050 currently enrolled, matriculated undergraduates. Approximately half of these students lived in campus dormitories, half lived off-campus. The results of the first mailing produced an exceptionally high response rate from all students (477 = 45%), which was hypothesized to be due to a high level of interest in the issues addressed. A second mailing was distributed to all non-respondents. The final sample consisted of 677 useable surveys, representing a 65% return rate overall, with a higher return from on-campus students (73% vs. 55%), due, presumably, to more intensive efforts to obtain their responses.

The respondents were compared to the overall student population in order to establish the randomness of the final sample. This comparison showed that, in general, the sample was representative with respect to sex, class level, residence, and quality indicators. Consistent with previous studies, females, who were more likely to be enrolled in professional programs, such as Education and Nursing, responded in greater proportion than other students. However, there were no cases where the discrepancies were larger than 2.5% and most were under 1.0%. The usual caveats concerning interpretation and generalization apply to the results of this study with respect to these apparent biases.

Design

In order to compare the survey responses of withdrawals and persistors, the enrollment status of students in the survey sample was determined a year after survey administration. Students were categorized into three groups; those who had graduated, those who had withdrawn, or been academically dismissed, and the persistors.

The initial analyses consisted of t-tests comparing all withdrawals with persistors. Sub-analyses were then performed comparing the different types of withdrawals, i.e., voluntary withdrawals with academic dismissals with persistors and with each other. Freshmen withdrawals were also compared to freshman persistors. Discriminant analyses were performed comparing all withdrawals with persistors on items selected due to their theoretical relationship to attrition. Results of the multivariate analyses are to be interpreted cautiously due to the small number of withdrawals, and are discussed here but are not presented in tables.

RESULTS

Total Sample

Means were computed by ACT for all scaled items (most were 5-point scales) for the total sample (N = 677). Frequency distributions were used as data for non-scaled items. Comparisons were made with SUNY and National Norms of the 65 standard ACT items. Plattsburgh's students were significantly more satisfied with all but a few services or aspects of the college environment than either norm group.

Withdrawal Study

Table 1 shows the results of t-test comparisons of the means of all withdrawals, voluntary withdrawals, and academic dismissals *with* persistors. Items are grouped by similarity of content, not necessarily as they appeared on the questionnaire. Local questions are indicated by asterisks. A mean appears in a column only if it was significantly different from the mean for persistors, with the exception of means in parentheses. The latter represent significant differences for sub-analyses only, such as voluntary withdrawals (V) vs. academic dismissals (A), or freshman withdrawals vs. freshman persistors (F). The legend in the last column indicates for which sub-analysis the difference was significant, and the appropriate mean is listed under the relevant column in parentheses.

Table 2 displays the significantly different quality indicators, i.e., high school average, college grade point averages, etc., and majors of the four groups studied. And, Table 3 shows the frequency distributions for some pertinent local questions as well as demographic information by withdrawal type.

DISCUSSION

Consistent with earlier findings, results are best understood by separating academic dismissals from voluntary withdrawals. The academic dismissals are basically happy with their college experience and show a high degree of goal commitment. Rather, their problems lie in their lack of *academic* commitment. While their SAT scores indicate no lack of ability, their high school averages and grade point averages in college suggest they have not applied themselves. Perhaps they are lacking in learning skills or study habits. For example, they report a higher degree of intellectual challenge at Plattsburgh, yet they study less than other groups of students. Academic dismissals are also more likely to be undecided about their major in college, which is an important predictor of attrition of both types. These patterns suggest they might benefit from academic and career counseling.

Voluntary withdrawals showed lower levels of academic integration than persistors. They had an academic profile similar to persistors, i.e., their high school achievement, aptitude scores, and grade point averages in college were comparable to persistors,* yet they reported feeling less intellectually challenged and stimulated by instructors and spent fewer hours per week studying. They were also disenchanted with other academic aspects of the college. They reported less satisfaction with instruction in their major, as well as with out-of-class availability of instructors and academic advisors, than did persistors. Since student attrition was concentrated in high demand programs, such as Business and Computer Science, this latter relative dissatisfaction may be related to the high student/faculty ratios and the use of part-time, adjunct faculty in these departments. Results of this study suggest increased efforts should be directed at the use of non-teaching professionals and peers as academic advisors.

Discussions about the results of the total sample have centered on ways of increasing out-of-class student/faculty interaction, because this was seen as an area in need of general improvement. In fact, results of multivariate analyses suggest that with the exception of college GPA, satisfaction with out-of-class availability of instructors is the most important predictor of attrition. Multiple regression studies of the total sample also indicate that this variable is the most important predictor of academic success. And, this was the only opinion item which was significantly lower for both academic dismissals and voluntary withdrawals. These results replicate the large numbers of studies done by Terenzini, Pascarella, and Chapman, confirming Tinto's model.

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*In fact their SAT Math scores were higher. This can be explained in part by the fact that the voluntary withdrawals in this sample were concentrated in math-related programs, such as Computer Science and Engineering.

One of the other important discriminators between persistors and withdrawals was lesser satisfaction with opportunities for personal involvement. This, together with the fact that both types of withdrawals spent less time involved in non-class, college-sponsored activities, suggests that attrition at this campus is also related to social integration, as defined by Terenzini and Pascarella (1977). However, tentative evidence from discriminant analyses suggests withdrawals were more satisfied with ease of making friends and with their living situation than persistors. It appears from these data that withdrawals socialized among themselves but did not feel socially or academically absorbed into this college community. This finding suggests that the proper balance must be maintained between peer relations and other forms of social or academic integration (Pascarella and Chapman, 1983).

There may be other relationships between social integration and persistence that were not detected in this study due to both the paucity of items in the questionnaire of a social nature and the small number of withdrawals in the sample. The latter, perhaps, explains why freshmen were not found to exhibit any unique patterns, particularly with regards to social integration. Plans are underway to include more social items in the replication of this study scheduled for Spring, 1987.

There are some other differences between persistors and withdrawals that have not been discussed in this paper due to space limitations and a lack of a theoretical framework for their interpretation. However, some of them suggest improvements that could be made to procedures and services of the college.

One additional point about voluntary withdrawals needs to be made. There may be no intervention that would change their decision to leave Plattsburgh. Some of these students come to Plattsburgh with no intention of graduating from this college.

One of the best predictors of attrition is to ask entering freshmen if they plan to withdraw, transfer out, or graduate from another college or from Plattsburgh. Evidence in this study substantiates this finding. Voluntary withdrawals were more inclined to say they originally did not plan to graduate from Plattsburgh; fewer of them said they planned to graduate at the time of the survey, and fewer of them and of the academic dismissals said Plattsburgh was their first choice. This supports the findings of Terenzini and Pascarella (1977, 1980) that institutional commitment is a powerful predictor of persistence.

SUMMARY

Once again the authors found it important to separate the academic dismissals from voluntary withdrawals when analyzing and interpreting the factors related to attrition (Green and Morlock, 1978). The difficulty in this design lies in the further reduction of an already small sample size. Therefore, replication is imperative and is planned for Spring, 1987.

The results of this study lend credence to the technique of surveying the student opinions of a cross-sectional sample of currently enrolled students and linking this data to later withdrawal status as a useful and practical approach to studying the factors related to attrition. Previous experience with attempts to survey students as they leave the college had been frustrating and unsatisfactory. Very few surveys were returned, and little information was gained because students tended to give "personal" as the reason for leaving the college. Plans for the future are to include a greater number and variety of items relating to attrition in either a mid-point survey or in the optional questions of the ACT Student Opinion Survey. While results of this study on the whole replicated those of other researchers, the value of doing this research at a particular college cannot be stressed enough. Pascarella and Chapman (1983) found that the relationships of academic and social integration and institutional commitment to persistence varied by institutional type. Also, action is more likely to be taken on campus-based data, rather than on a general, theoretical model.

Recommendations based on this study, other than the obvious need for intensive academic and career counseling for the academic dismissals, remain tentative until replication of the study is completed. However, results based on the total sample and of other researchers highlight the importance of improving the out-of-class interaction between faculty and students and for exposing students early in their college career to the variety of intellectual, cultural, and recreational opportunities for personal involvement. Results of this study have supported plans to institute a "Freshman Experience" program on this campus, designed to increase involvement of the freshmen with faculty, to engage them in more intellectual discussions with other students, and to become acquainted with activities on campus with which they can become involved. Finally, these data have provided a context and a focus for discussions among faculty, students, and administration about the aspects of the college that could be improved as well as maintaining efforts which have been successful in terms of student satisfaction, goal achievement, and retention.

Table 1. Comparison of ACT Student Opinion Survey* Results of Withdrawals vs. Persistors

	Vol W/D	A/D	All W/D	Persistors
N =	46	28	74	407
ACADEMIC				
Out-of-class Availability of Instructor	3.60	3.37	3.51	3.83
Attitude of Faculty		3.42		3.80
Instruction in Major	3.37		3.44	3.79
Academic Advising	3.49		3.61	3.90 F
Availability of Advisor	3.49		3.52	3.96
Value of Information provided by Advisor	3.37			3.74
Intellectual Stimulation by Faculty	2.98		3.10	3.46 F
Intellectual Challenge	3.26		3.49	3.88 A>V
Educational Expectations			3.10	3.43 F
GENERAL				
Opportunities for Personal Involvement	3.53		3.63	3.87
Racial Harmony			(3.39)	(3.74) F Only
This College in General	3.74			4.02
RULES & REGULATIONS				
Rules Governing Student Conduct at this College	3.26		3.20	3.51
Student Government	(3.23)	(3.71)		(3.37) A>P or V
Student Voice in Policies			(3.07)	(3.40) F Only A<V
ADMINISTRATION OR SERVICES				
Accuracy of Information Before Enrolling	3.49		3.53	3.84 F
Transfer Transition	2.27		2.62	3.07 4 Pt. Scale
Academic Calendar	3.07		3.22	3.45
Attitude of Non-teaching Staff	(3.27)	(3.80)		A>V
Computer Services			3.73	3.44 W>P
Library			(3.76)	(4.15) F Only
Cultural Programs			(3.00)	(3.92) F Only

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* Means were based on 5-point scale: 1 = very dissatisfied to 5 = very satisfied.

Only significantly different results are shown.

Table 2. Comparison of Withdrawals vs. Persistors.

	Quality Indicators*			
	Vol W/D	A/D	All W/D	Persistors
Sat-Math	536			503
High School Average	(84.8)	81.8		84.8
Cumulative GPA-1st Spring	(2.68)	1.67		2.65
Cumulative GPA-2nd Spring	(2.58)	1.39		2.71

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* ONLY SIGNIFICANTLY DIFFERENT VALUES ARE SHOWN.

MAJORS (PROGRAMS WITH N>5)

	Vol W/D	A/D	All W/D	Pers	Total Sample
PROGRAM	%	%	%	%	%
No Major	17	29	22	9	8
Business	9	21	13	12	15
Computer Science	11	7	9	8	7
Engineering	11	4	8	2	2
Accounting	9	4	7	6	6
Biology	7	7	7	3	3
Special Education	4	11	7	3	4
SUBTOTAL	68	83	73	43	44
Other Majors	32	17	27	57	56
TOTAL	100	100	100	100	100

Table 3. Comparison of Withdrawals Vs. Persistors: Self-descriptive Survey Items (%).

	Vol W/D	A/D	All W/D	Persistors
N =	43	28	74	407
	%	%	%	%
Hours Per Week Spent Studying				
0-12	53	50	52	31
13-20	29	39	33	40
21+	18	11	15	29
Hours Per Week in College-sponsored Activities				
0	23	25	24	18
1-4	51	57	53	51
5+	26	18	23	31
Did You Originally Plan To Graduate From PSUC?				
Yes	64	90	74	88
No	36	10	26	12
Do You Plan To Graduate From PSUC?				
Yes	37	75	49	96
No	63	25	51	4
Was Plattsburgh Your First Choice?				
Yes	49	36	44	53
No	51	64	56	47
Sex				
Male	41	43	42	34
Female	59	57	58	66
Financial Aid				
Yes	44	64	52	60
No	56	36	48	40
Age				
18-19	51	52	51	40
20-21	29	30	29	50
22-25	16	18	17	7
26+	4	0	3	3
Residence				
Dorm	61	75	66	74
Off-campus				
Apartment	28	14	23	18
Home-Parents	2	11	5	5
Own Home	7	0	4	2
Other	2	0	2	1
Hours Employed				
0	71	93	80	68
1-10	16	4	11	17
11+	13	4	9	15

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Estimating Student Flow with Limited Data

by

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BACKGROUND

Forecasting new admissions has received extensive treatment in recent years. For example, WICHE (1984) has provided estimates of decline in high school graduates by state while Zemsky and Odel (1983) have developed a stratified analysis of recruitment areas using college board data. The need for these forecasts for private, tuition driven institutions is especially clear, but recently public institutions of higher education have become increasingly subject to enrollment related funded formulas.

Published work on retention has emphasized factors influencing retention e.g. Astin (1976) or Aitken (1982) with few papers emphasizing the mathematical modeling of flow rates through the institution. A statistical model, as described in Rumpf (1978) requires at least ten years of accurate enrollment and withdrawal data by class. Alternatively, one could track individual students to determine flow rates. This option requires five or more years of accurate data plus an enrollment management information system with tracking capabilities. Unfortunately, in many cases, neither option is viable because data have not been archived and higher education enrollment management information systems have only recently been developed.

The authors have developed a limited data requirements model which provides the retention rate estimates needed to forecast enrollment. The model is described below and preliminary results are provided for three institutions - two public and one private.

Future enrollment can be forecast if one can combine estimates of new admissions with the number of retained students. We focus on the estimation of retention rates by class. By multiplying retention rates by known class size and adding new admissions, one can estimate one year ahead. Recursively, one can project 2, 3 or more years. Of course, long term projections become increasingly dependent on new admission estimates.

Mathematical modeling of retention rates can replace precise measurement of the same but estimation requires a modeling situation in which the results must satisfy certain important a priori expectations. At a minimum, all retention rates must be greater than or equal to zero and less than or equal to one. These necessary conditions, which we call maintained hypotheses, may serendipitiously be satisfied by a general model or may have to be imposed during the modeling process. This paper explores only those techniques that conserve on the use of data and circumvent the need for detailed information which is often unavailable. In building a methodology, the decision was made to focus on new entering freshman and transfer students, ignoring the grade distribution of the latter. Together with data on total enrollments and a priori expectation of the required mathematical relationships required, estimation of net retention rates develops.

FORECASTING MODEL

The model combines a polynomial lag approach with goal programming to develop retention rate estimates while constraining the estimates to behave properly.

Specific functions which are appropriate for use in estimating retention rates are diverse, but a prime choice must be the polynomial distributed lag model first introduced by Almon (1965). This functional form suggests:

$$E_t = \sum_{\alpha=0}^{T_\alpha} a_\alpha FE_{t-\alpha} + \sum_{\beta=0}^{T_\beta} b_\beta TE_{t-\beta} \qquad [1]$$

where

E_t = total enrollment in year t
FE_t = new freshman enrollment in year t
TE_t = new transfer enrollment in year t

In this case the lag periods are T_α and T_β with the expectation that $T_\alpha > T_\beta$. In this model, the parameters a_α and b_β are interpreted as the net percentages of entering students (by year of entrance) left in the institution after α or β years, respectively. These percentages are interpretable as net retention rates. Alternatively, they are one minus the attrition rates of the entrance cohorts. By definition, it should be true that

$a_o = b_o = 1$ and for some lags T_α and T_β, appropriately long, $a_\alpha = b_\beta = 0$.

The major contribution of Almon was that with a polynomial distributed lag model, the a_α and b_β are distributed over the period of the lag as a polynomial. For a third degree polynomial, for example, these would be distributed as the following:

$$a = c_0+c_1\alpha+c_2\alpha^2+c_3\alpha^3$$

$$b = d_0+d_1\beta+d_2\beta^2+d_3\beta^3$$

Data is used to determine the value of c_i's and d_i's and then the a_α's and b_β's are constructed from the equations above. This constrains the a_α's and b_β's to be distributed along a polynomial. More generally, for polynomials of degree D_α and D_β:

$$a = \sum_{i=0}^{D_\alpha} c_i\alpha^i \quad \text{and} \quad b_\beta = \sum_{i=0}^{D_\beta} d_i\beta^i \qquad [2]$$

The power of the polynomial distributed lag model is derived from substituting (2) into (1) and simplifying . In this case, equation (1) becomes

$$E_t = \sum_{\alpha=0}^{T\alpha} \sum_{i=0}^{D\alpha} c_i\alpha^i FE_{t-\alpha} + \sum_{\beta=0}^{T\beta} \sum_{i=0}^{D\beta} d_i\beta^i TE_{t-\beta} \qquad [3]$$

From equation (3), the c_i's and the d_i's can be factored estimating the polynomial parameters by using as right hand side regressors the 'artificial' variables that amalgamate the lagged non-transfer and transfer entrants from various periods. Equation (4) results:

$$E_t = \sum_{i=0}^{D_\alpha} \sum_{\alpha=0}^{T_\alpha} c_i\alpha^i FE_{t-\alpha} + \sum_{i=0}^{D_\beta} \sum_{\beta=0}^{T_\beta} d_i\beta^i TE_{t-\beta} \qquad [4]$$

The work of Almon and others suggests that constraints may be placed on end points of the polynomial distribution. For our purposes, two endpoint restrictions are relevant. The 'near' restriction should be one, implying that all current year entrants are currently enrolled -- a tautological condition if the institutional measurement of new entrants and enrollments are taken at the same time. This implies as noted that $a_0 = b_0 = 1$ and requires that $c_0 = d_0 = 1$. The 'tail' restrictions should be zero, implying that with sufficient lag, zero percentage of entrants from very early periods are left within the institution. This restriction, of course, is not tautological and is placed only for convenience to limit the number of periods of historical data on new entrants. For $\alpha = T_\alpha$ and $\beta = T_\beta$ the joint restrictions on head and tail imply:

$$-1 = \sum_{i=1}^{D_\alpha} c_i T_\alpha^i \quad \text{and} \quad -1 = \sum_{i=1}^{D_\beta} d_i T_\beta^i \qquad [5]$$

and there are $D_\alpha - 1$ and $D_\beta - 1$ remaining coefficients with a similar number of artificial variables left to estimate on observations over time. This places desirable stress on the rate of change of the polynomial functions, setting the end points by a priori restrictions. For example in the case of quadratic (second degree) polynomials, the D_α's and D_β's are set at two (2) and only one parameter is estimated for the non-transfer and transfer flows. These parameters determine whether the function is concave or convex and whether it is monotonic over the lag interval of T_α and T_β periods.

Results from applying the third degree polynomial lag model were not satisfactory. In particular, the retention rate estimates were often greater than one or negative. However, by merging the often greater than one or negative. However, by merging the polynomial lag with a goal programming approach, we were able to insure appropriate behavior for retention rate estimates.

Goal programming can incorporate the polynomial lag model while allowing constraints on the retention rate coefficients. This well known technique permits the use of linear programming in multiobjective problems (Hillier and Lieberman (1980)). The general approach defines the decision variables as the deviation, in a positive or negative direction, from a set of numerically defined objectives. In our case, the objectives are to match as closely as possible the enrollment estimates to the actual data. In effect, the parameter estimates (optimal solution in a linear programming context) are the 'best' estimates for the given set of data based on minimizing the sum of absolute deviations rather than minimizing squared deviations as is usually true in performing a linear regression fit.

Additional constraints can now be placed on a and b_β, the net retention rates for the two streams of new enrollment. Adding constraints which force both monotonic decrease in the rates and limit the rates to the 0 to 1 range immediately resolves the problems described above.

The general Goal programming formulation, expressed in terms of the D_α-1 plus D_β-1 parameters and the 2N goal variables are:

$$\text{minimize} \quad z = \sum_{t=1}^{N} (X_t^+ + X_t^-)$$

such that:

$$\sum_{\alpha=0}^{T_\alpha} FE_{t-\alpha} \quad \sum_{i=2}^{D_\alpha} c_i[\alpha^i - \alpha T_\alpha^{i-1}] + \sum_{\beta=0}^{T_\beta} TE_{t-\beta} \quad \sum_{i=2}^{D_\beta} d_i[\beta^i - \beta T_\beta^{i-1}] + X_t^+ - X_t^- =$$

$$E_t - \sum_{\alpha=0}^{T_\alpha} FE_{t-\alpha}(1-\alpha/T_\alpha) - \sum_{\beta=0}^{T_\beta} TE_{t-\beta}(1-\beta/T_\beta) \text{ for all } t = 1 \text{ to } N$$

$$\sum_{i=2}^{D_\alpha} c_i[(\alpha+1)^i - \alpha^i - T_\alpha^{i-1}] <= 1/T_\alpha \quad \text{for all} \quad \alpha = 0 \text{ to } T_\alpha - 1$$

$$\sum_{i=2}^{D_\beta} d_i[(\beta+1)^i - \beta^i - T_\beta^{i-1}] <= 1/T_\beta \quad \text{for all} \quad \beta = 0 \text{ to } T_\beta - 1$$

This combined model was applied to the set of data used for the polynomial lag model. Third degree polynomials were assumed for both freshman and transfer retention rates. The assumption allows saddle point behavior for the flow rate estimates, a situation often observed in retention studies while maintaining a parsimonious model which requires estimates for just four parameters. Assuming that freshmen entrants at a four year school would graduate in six years or less, the length of freshmen lag (T_α) was set at six. The model was run for two values of transfer lag, T_β=5 and T_β=6. The five year lag models a situation where the majority of transfer students are upperclassmen while the six year lag model represents a situation with larger numbers of lower division transfers.

RESULTS

The model was applied with data from 3 schools; two public institutions, the University of Massachusetts at Amherst and the State University of New York at Albany and one private school, Amherst College. The first run assumed a six year lag for freshmen and five years for transfers. A second application assumed six year lags for both freshmen and transfer students. The results are shown in Figures 1 through 4.

The predicted retention rates for freshmen entrants behave similarly for the two public institutions. There is a large attrition of over 20% between freshman and sophomore year, a smaller drop between sophomore and junior year. Then a leveling off until graduation after 4 or 5 years. The private school has a smaller drop the first year and then continues to decline almost linearly through the six year period. Transfer students at the two public institutions have a rapid rate of leaving in the first year, and then a big drop the second year, then a continuing decline to zero. Transfers at Amherst College are predicted to be much more likely to remain at school. The difference in predicted rates for the first three years make sense in that Amherst College is more selective and thus should expect lower attrition. However, the linear form of the decline for Amherst College is counter-intuitive and may indicate a problem with the model.

The results for freshmen remain very similar for the six/six year lag assumption (i.e. a maximum of six years to leave for freshman and transfer students). However, the projected transfer retention rates for Amherst College shift dramatically which indicates a large sensitivity to model assumptions.

In conclusion, we have developed a model which attempts to predict retention rates based on enrollment data alone. The model does provide reasonable estimates for the first three years. However, questions remain regarding the stability of the estimates under different lag assumptions. In addition, the third degree assumption may force a smoother decline in retention rates than is found empirically.

FIGURE 1

FRESHMAN, SIX/FIVE YEAR LAG

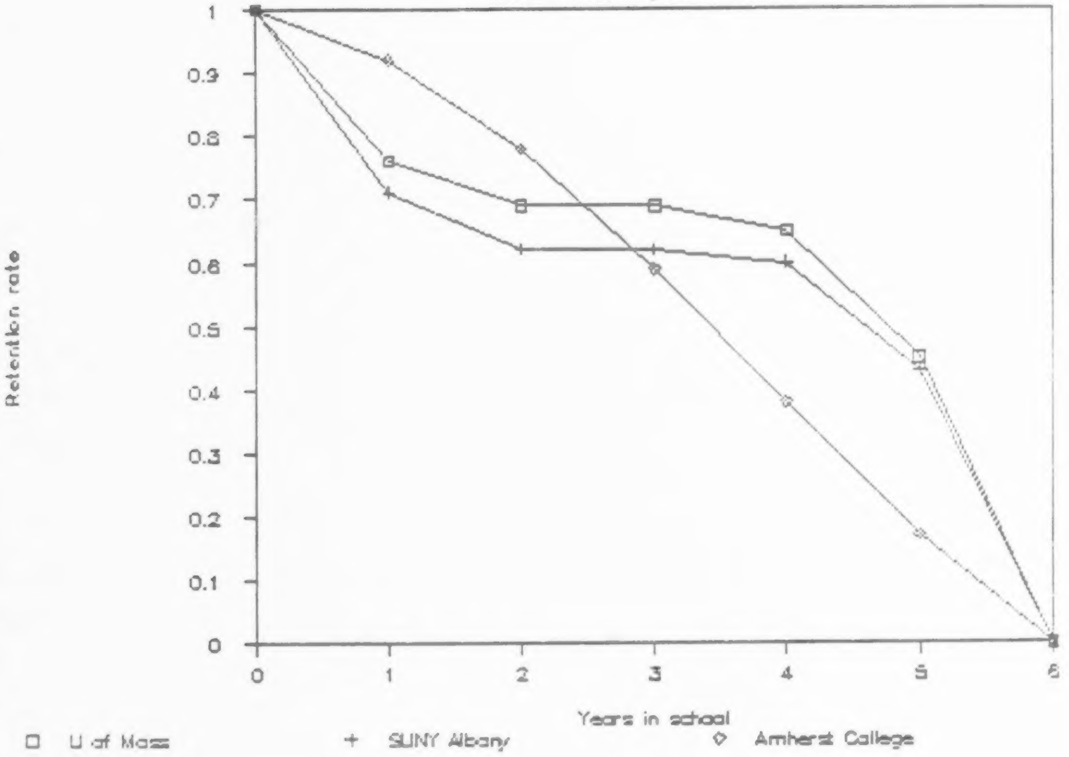


FIGURE 2

TRANSFER, SIX/FIVE YEAR LAG

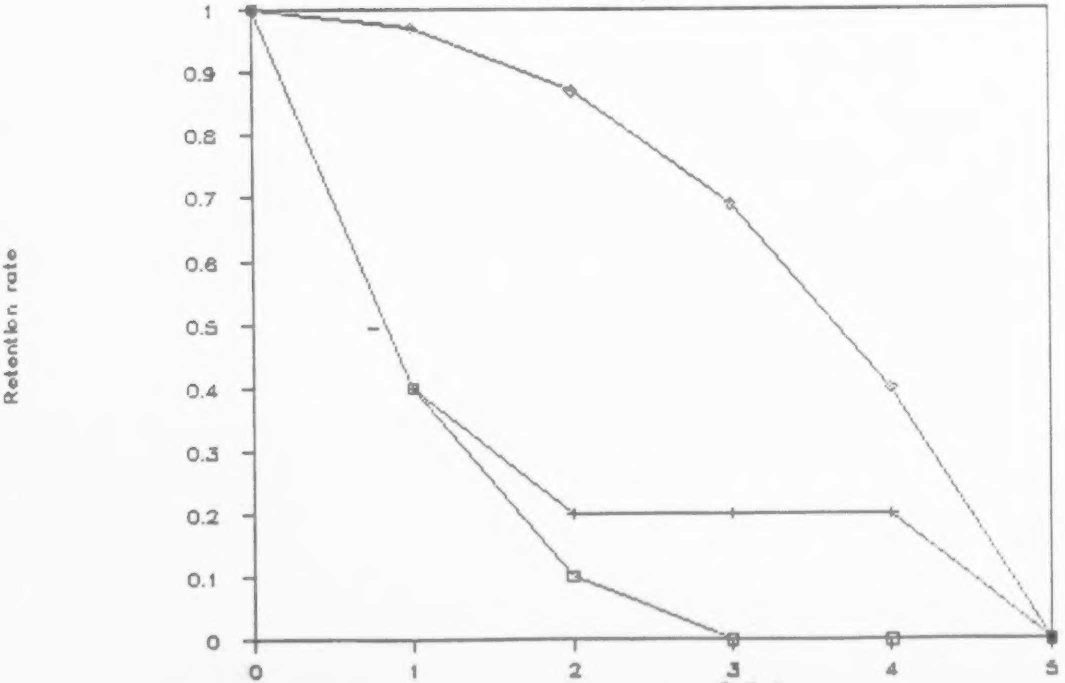


FIGURE 3

FRESHMAN, SIX/SIX YEAR LAG

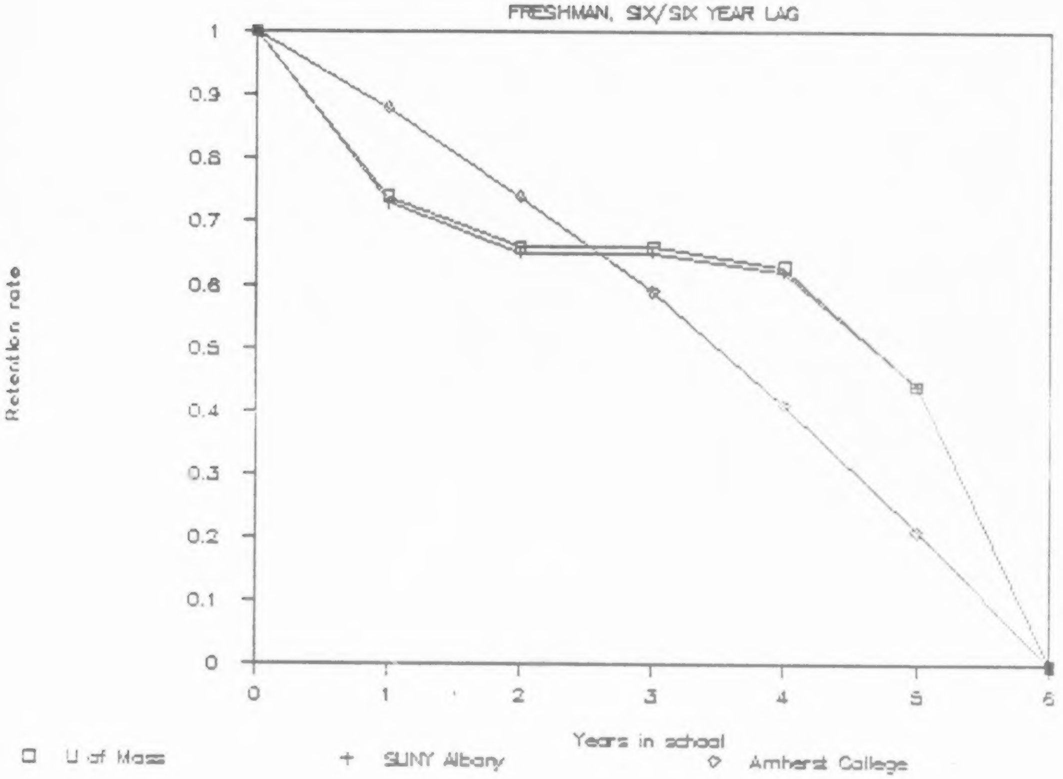
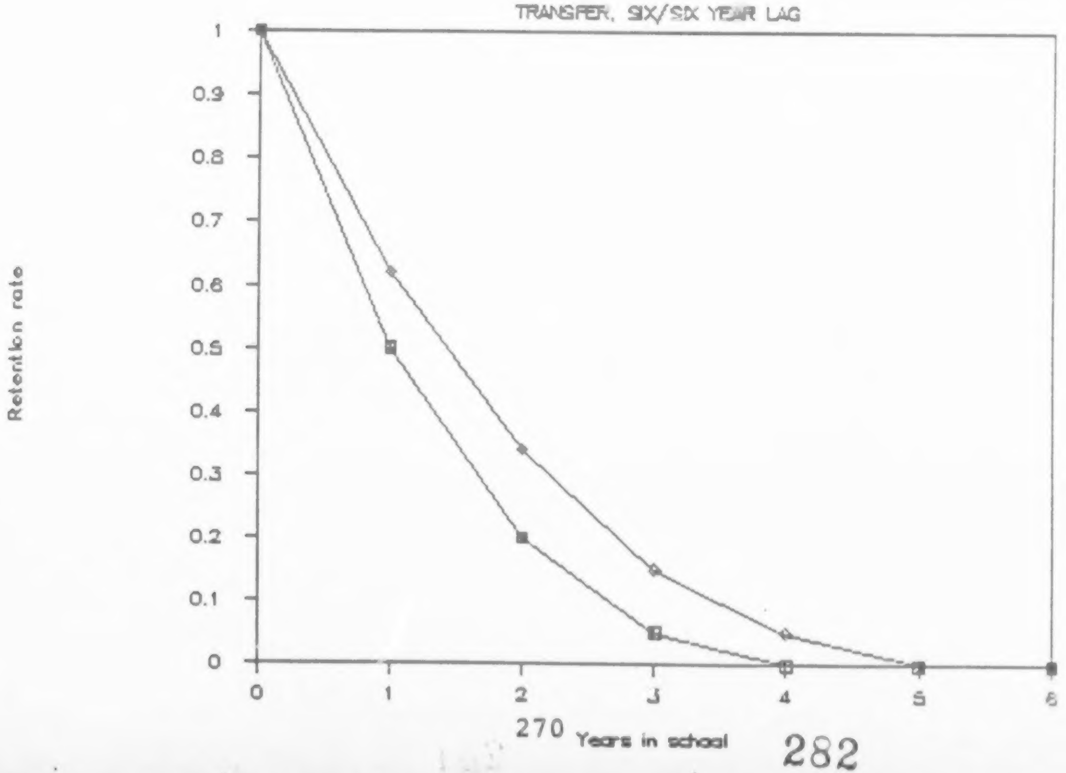


FIGURE 4

TRANSFER, SIX/SIX YEAR LAG



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TOTAL PRIVATE SUPPORT AND ALUMNI/AE GIVING: A COMPARISON OF TWENTY-SIX PRIVATE UNIVERSITIES, 1976 TO 1985

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ABSTRACT

A review of private fund-raising results at twenty-six selective private universities shows that all but one raised their level of giving in current dollars in the ten-year period from 1976 through 1985; for the most recent five years (1981-1985), all but one showed increases. On two more difficult tests, the results were less uniformly successful. In constant dollars, nineteen of the twenty-six improved their performance in the most recent five-year period. And only fourteen (just over half the institutions) managed to raise their fund-raising in proportion to their operating budgets.

Alumni/ae giving represented 28% of total private support, on average This ratio held steady during the ten-year period. These institutions differed very widely, however, in total alumni dollars per alumni of record, ranging from $30 per year at the University of Miami to $545 at Princeton, for the 1981-1985 period.

Institutions are ranked on achievements and improvements in total giving and in alumni support during the ten-year and five-year periods. Princeton emerges as a clear winner for the 1981-1985 period.

PURPOSE AND METHODOLOGY

This study is the latest in a series of comparative reviews of fund-raising performance at selective private institutions.

Over half of the twenty-six private universities in this comparison are involved in a formal comparison of fund-raising costs and staffing, supported in part by the Exxon Education Foundation. The authors express their appreciation for that support. The remaining institutions were included because of their participation in the Tufts-EDUCOM Data-Sharing Project or because they were judged by the participants to be useful comparions.

The following institutions were included in the study:

Boston University	BU
Brandeis University	BS
Brown University	BR
Carnegie-Mellon University	CM
Case Western Reserve University	CW
University of Chicago	UC
Columbia University	CL
Cornell University	CU
Dartmouth College	DC
Duke University	DU
Emory University	EU
Georgetown University	GU
Johns Hopkins University	JH
University of Miami	UM
Northwestern University	NU
University of Pennsylvania	UP
Princeton University	PU
University of Rochester	UR
Southern Methodist University	SM
Stanford University	ST
Syracuse University	SU
Tufts University	TU
Tulane University	TL
Vanderbilt University	VU
Washington University (St. Louis)	WU
Yale University	YU

While the institutions share many characteristics (e.g., substantial research programs, a dedication to graduate and professional as well as undergraduate education), they differ markedly on such basic measures as enrollment, endowments, operating budgets, and number of alumni. (Table 1.) They also differ in the longevity, intensity and sophistication of their fund-raising efforts.

Data for the study came from the annual reports of the Council on Financial Aid to Education (CFAE), Voluntary Support of Education, for the years from 1975-76 through 1984-85. CFAE records only proceeds received during the year, not pledges. No independent efforts were made to check the accuracy or consistency of these institutionally supplied data, except where data reported to CFAE differed from data reported by them.

We measured fund-raising success in four ways:

- total private support. This was defined as the sum of all private support received, for capital and for operating purposes. Total support is an absolute measure, and tends to favor large institutions.

- private support leverage. This is the percentage that total support represents of the institution's educational and general budget. Support leverage is a measure of the importance of fund-raising relative to other sources of revenue, and tends to favor smaller institutions. Support leverage is an important measure but a crude one. Note that the numerator includes both operating and capital funds, but the denominator includes only operating funds.

- improvement in total support. This factor was the average annual percent increase in total support received during the period studied.

- improvement in support leverage. This final measure was the average annual percent increase in support leverage achieved during period. This index measures the growth of fund-raising relative to the growth of other sources of funds.

Both the total support and support leverage measures tend to favor institutions with a successful long-term history of fund-raising. Conversely, both of the improvement measures tend to favor institutions where rapid improvement is possible over a small base.

Similarly, we sought several measures of alumni/ae giving:

- total support from alumni/ae, defined as all private support received, whether for capital or for operating purposes. An absolute measure, total alumni support tends to favor schools with large alumni bodies.

- total support from alumni as percent of grand total support. This ratio reflects the importance of alumni giving in relation to such other sources of support as corporations, foundations and non-alumni individuals.

- total support from alumni/ae per alumni/ae of record. Calculated by dividing total alumni/ae support by the number of alumni/ae of record, this figure is a measure of alumni/ae willingness and ability to support the institution. In the absence of data on number of alumni/ae donors for all purposes, it is not possible to calculate the percentage of all alumni/ae who give, or the size of the average gift, which might measure loyalty or wealth respectively. Thus this composite measure is used.

- improvement in total alumni support.
- improvement in total alumni dollars per alumnus of record.

To smooth out large yearly variations in total and alumni fund-raising proceeds, we took simple means of the annual values for each institution for the ten-year period and for the most recent five years. Values for the various improvement measures were derived by calculating the slope of the straight-line regression for these indices over time.

All regression analyses were accomplished with the Statistical Package for the Social Sciences (SPSS-PC, McGraw-Hill, 1984) on an IBM XT microcomputer. Data calculations, sorts and graphics were carried out using Lotus 123 (Lotus Development Corp., 1983) and FreeLance (Graphic Communications, Inc., 1985) on a Zenith microcomputer with a Hewlett Packard plotter.

FINDINGS

a. Total support achievements

Stanford, Yale, Cornell, Columbia, and Penn raised the largest amounts of money during the ten-year period; Princeton displaced Penn in fifth place in the 1981-1985 period. The top five averaged over $55,000,000 per year in the latter period, and Stanford reached an average of $97,000,000. Among the top five, Cornell trailed Columbia for the ten-year period, but moved ahead of them in the most recent five years. (Table 3.)

Princeton, Dartmouth, Tulane, Brandeis, and Southern Methodist raised the largest amounts relative to their educational and general budgets in the last five years. All averaged over 26%, and Princeton reached over 39%. The top five for the ten-year period were Princeton, Dartmouth, Brandeis, Case Western Reserve, and Southern Methodist. (Table 3.)

The mean leverage value for the twenty-six universities was 18.9% of E&G budgets, and had stayed in the 18-19% range (except for the year of the major gift to Emory) during the entire period. In other words, this set of institutions, as a group, managed to keep their fund-raising efforts growing as fast as their overall operating budgets did during a period of both inflation and institutional growth. (Table 3.)

The universities which emerge in the 1981-1985 period as having the best fund-raising job when one considers both total support and support leverage are Princeton, Yale, Stanford, Dartmouth and Tulane. (Table 3.)

b. Total support improvements

The largest average annual percentage improvements in total support during the most recent five years were reached by Carnegie-Mellon, Princeton, Columbia, Rochester, and Syracuse. Each of these raised their total support by 20% or more per year during the period. For the ten-year period as a whole, Tufts, Carnegie-Mellon, Boston University, Georgetown and Tulane increased the fastest. (Table 2.)

During the last five years, inflation averaged 7.0% annually as measured by the Consumer Price Index, 7.5% by the GNP Deflator. Of the twenty-six universities, nineteen managed to increase private support in real terms (faster than inflation), most by a considerable margin. (Table 2.)

There were substantial differences, however, among these universities. Top improvements in the percentage of total E&G represented by private support in the 1981-85 period were attained by Chicago, Syracuse, Tulane, Princeton, and Rochester. About half of these universities (fourteen of twenty-six) managed during this five-year period to raise private support as a percentage of E&G -- in other words, to make their private giving grow faster than their operating budgets. (Table 2.)

Note: some caution should be used in interpreting the growth rate of this ratio. Most of the institutions that showed declines in their private support leverage also showed low rates of growth in total support. But Brandeis, for example, showed a 10.5% growth rate in private support from 1981 through 1985; their 5.4% annual decline in support leverage simply means that other sectors of their budgets (e.g., research activity) were growing at a faster rate than private support. (Table 2.)

Combining the two improvement ratings shows Princeton, Syracuse, Carnegie-Mellon, Rochester, and Columbia as achieving top increases. (Table 3.)

c. Support from alumni/ae.

The same five institutions that produced highest overall fund-raising results received the greatest support from their alumni, though the order differed: Yale, Princeton, Stanford, Cornell and Columbia. (Table 4.)

Care should be taken in interpreting these rankings, since the values can be markedly influenced by unusual major gifts (e.g., Case Western Reserve in 1981, and Johns Hopkins in 1984).

Support from alumni for this group of institutions as a whole held at a remarkably stable proportion of total private support -- 28-29% -- during the ten-year period. This overall stability should not, however, mask wide variations among the universities. Dartmouth, Yale, and Princeton all received 50% or more of their very substantial total support from their alumni; Penn, Duke, Emory and the University of Miami all received less than 20%; and for Brandeis, a relatively new institution, only 3.5% of total support came from alumni/ae.

Even wider variation among these institutions can be seen in the total alumni dollars given per alumni of record. Given the very different alumni body sizes, this indicator is a proxy measure for the willingness and ability of the alumni to support their universities. Princeton and Dartmouth received an average of $545 and $465 per year per alumnus of record during the last five years. The mean for the group was $142. Half the universities received $110 per alumnus, or less.

d. Improvements in alumni/ae support.

Boston University, Carnegie Mellon, Johns Hopkins, Princeton, and Rochester showed the highest rates of improvement in alumni/ae giving during the last five years, all rising at 20% per year or more. For the ten-year period, Georgetown, Tulane, Boston University, Tufts, and Washington University showed the highest growth rates. Sixteen of the twenty-six universities raised alumni/ae giving faster than inflation in the last five years. (Table 4.)

Boston University, Carnegie-Mellon, Johns Hopkins, Syracuse, and Princeton increased their alumni giving per alumnus of record most rapidly from 1981 through 1985. (Table 4.)

These improvement measures tend to favor institutions that achieve substantial progress over low starting points. Princeton's performance is particularly unusual given its high starting point.

FURTHER RESEARCH

Researchers might want to track the achievements and improvements in fund-raising for the groups of institutions they consider peer or aspiration schools. Further work is also called for in exploring differences among institutions in sources of their support -- from alumni, other individuals, corporations, foundations and the like. Similarly, further analysis into the form of giving could reveal useful information: how much was given through bequests, through deferred gifts, in a few large gifts rather than in numerous small ones. Finally, studies should be done linking these different patterns of achievement and of gift-giving with what institutions spend to attract support.

A more complete version of this report, with all data tables and some graphics, is available from the authors.

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Table 1: INSTITUTIONAL CHARACTERISTICS, 1984-85

Institution	Carnegie Council Class	Date of Founding	E&G Exp. ($000)	Endowment ($000)	Total Enroll.	Total Alumni	Grand Total Support ($000)	Support From Alumni ($000)	Total Support % of E&G Exp.	Total Support per stu. ($)	Alum $ per alum ($)
Boston Univ.	Rsch I	1839	305,092	110,686	27,181	140,888	19,342	5,554	6.3%	712	39
Brandeis Univ.	Rsch II	1948	76,117	107,160	2,856	19,202	21,690	690	28.5%	7,595	36
Brown Univ.	Rsch II	1764	123,189	202,128	7,181	50,048	23,571	12,214	19.1%	3,282	244
Carnegie Mellon	Rsch II	1900	136,172	193,458	6,578	44,190	29,221	16,125	21.5%	4,442	365
Case Western Res.	Rsch I	1826	149,889	240,549	8,529	80,101	31,281	6,582	20.9%	3,668	82
Chicago Univ. of	Rsch I	1891	276,168	547,579	9,464	96,664	60,275	9,128	21.8%	6,369	94
Columbia Univ.	Rsch I	1754	515,492	989,075	17,523	180,040	93,363	21,722	18.1%	5,328	121
Cornell Univ	Rsch I	1865	574,219	549,400	19,191	186,784	91,859	25,956	16.0%	4,787	139
Dartmouth Coll.	Doct I	1769	125,264	414,137	4,591	46,942	39,948	23,983	31.9%	8,701	511
Duke Univ.	Rsch I	1838	241,236	266,204	10,253	74,047	53,588	7,078	22.2%	5,226	96
Emory Univ.	Rsch II	1836	159,431	535,760	8,166	48,174	21,167	2,823	13.3%	2,592	59
Georgetown Univ.	Rsch II	1789	205,282	141,036	11,989	63,992	27,010	4,741	13.2%	2,253	74
Johns Hopkins	Rsch I	1876	399,118	393,129	11,656	65,000	57,557	9,004	14.4%	4,938	139
Miami Univ. of	Rsch I	1925	209,107	82,576	17,591	66,069	27,861	2,253	13.3%	1,584	34
Northwestern Univ.	Rsch I	1851	295,788	578,635	15,853	189,032	46,476	13,113	15.7%	2,932	69
Pennsylvania U. of	Rsch I	1740	502,185	437,064	22,317	183,012	65,945	11,216	13.1%	2,955	61
Princeton Univ.	Rsch I	1746	166,527	1,500,000	6,322	52,095	79,396	37,513	47.7%	12,559	720
Rochester Univ. of	Rsch I	1850	211,359	581,873	9,053	58,480	27,374	4,277	13.0%	3,024	73
Southern Methodist	Doct I	1911	95,629	233,659	9,048	64,726	24,333	7,240	25.4%	2,689	112
Stanford Univ.	Rsch I	1885	665,000	1,194,763	12,189	139,826	125,492	29,363	18.9%	10,296	210
Syracuse Univ.	Rsch II	1870	150,021	100,820	20,980	122,712	16,884	5,545	11.3%	805	45
Tufts Univ.	Rsch II	1852	144,021	78,277	7,336	60,118	21,049	4,830	14.6%	2,869	80
Tulane Univ.	Rsch II	1834	122,519	141,656	12,133	67,219	27,307	10,327	22.3%	2,251	154
Vanderbilt Univ.	Rsch II	1873	168,861	284,404	9,117	73,678	27,515	9,499	16.3%	3,018	129
Washington Univ.	Rsch I	1853	304,553	633,478	10,497	70,810	47,029	12,238	15.4%	4,480	173
Yale Univ.	Rsch I	1701	389,033	1,318,632	10,890	106,361	85,435	35,310	22.0%	7,845	332
Maximum			665,000	1,500,000	27,181	189,032	125,492	37,513	47.7%	12,559	720
Mean			258,126	456,005	11,865	90,393	45,845	12,628	19.1%	4,508	161
Minimum			76,117	78,277	2,856	19,202	16,884	690	6.3%	712	34

Source: Classifications from Carnegie Commission on Policy Studies, 1976
Founding date from HEP 1986 Higher Education Directory
All other from CFAE annual reports

Table : IMPROVEMENT IN TOTAL SUPPORT AND IN SUPPORT LEVERAGE 1976-1985, and 1981-1985

Institution	Ave. Annual % Incr. in Total Support 76-85	81-85
Carnegie Mellon	31.9%	35.9%
Princeton Univ.	26.3%	23.7%
Columbia Univ.	15.2%	23.0%
Rochester Univ. of	2.2%	20.0%
Syracuse Univ.	17.0%	20.0%
Boston Univ.	29.8%	19.9%
Tufts Univ.	40.3%	19.1%
Emory Univ.	3.1%	18.4%
Cornell Univ	19.3%	18.0%
Stanford Univ.	14.3%	15.7%
Tulane Univ.	29.0%	15.4%
Chicago Univ. of	10.3%	12.8%
Duke Univ.	13.6%	11.6%
Pennsylvania U. of	9.9%	10.9%
Brandeis Univ.	8.3%	10.5%
Miami Univ. of	10.1%	9.2%
Brown Univ.	23.1%	8.2%
Georgetown Univ.	28.2%	7.7%
Yale Univ.	11.3%	7.1%
Vanderbilt Univ.	13.8%	7.0%
Northwestern Univ.	12.0%	6.8%
Johns Hopkins	13.1%	6.5%
Washington Univ.	20.6%	5.2%
Southern Methodist	10.9%	3.0%
Case Western Res.	.0%	1.2%
Dartmouth Coll.	8.3%	-2.2%
CPI	9.4%	7.0%
GNP	8.1%	7.5%

Institution	Ave. Annual % Incr. in Support Leverage 76-85	81-85
Chicago Univ. of	19.4%	20.5%
Syracuse Univ.	4.8%	12.0%
Tulane Univ.	13.2%	11.1%
Princeton Univ.	5.6%	8.0%
Rochester Univ. of	-8.1%	8.0%
Boston Univ.	-15.2%	7.0%
Carnegie Mellon	11.1%	6.6%
Columbia Univ.	0.6%	5.5%
Miami Univ. of	.0%	5.4%
Southern Methodist	-2.8%	3.8%
Emory Univ.	-3.4%	3.5%
Tufts Univ.	6.6%	3.0%
Cornell Univ	2.5%	0.8%
Duke Univ.	0.9%	0.2%
Stanford Univ.	-2.1%	-1.0%
Brown Univ.	4.6%	-2.4%
Northwestern Univ.	0.2%	-2.6%
Yale Univ.	0.7%	-2.7%
Pennsylvania U. of	2.6%	-2.8%
Vanderbilt Univ.	2.1%	-4.6%
Washington Univ.	4.6%	-5.1%
Brandeis Univ.	-4.6%	-5.4%
Case Western Res.	-7.2%	-5.4%
Johns Hopkins	-1.1%	-7.8%
Georgetown Univ.	4.5%	-8.5%
Dartmouth Coll.	-1.5%	-12.3%

Table : SUMMARY OF ACHIEVEMENT AND IMPROVEMENT RANKINGS, 1981 - 1985

Achievement

	Ave Tot Supt		Supt. Lever.		
Institution	Rank	($000)	Rank	% E&G	Rank
Princeton Univ.	5	55,693	1	39.8%	3
Yale Univ.	2	72,327	7	22.1%	5
Stanford Univ.	1	97,124	10	20.1%	6
Dartmouth Coll.	12	33,855	2	32.6%	7
Tulane Univ.	14	26,420	4	27.2%	9
Columbia Univ.	4	65,935	15	15.8%	10
Chicago Univ. of	7	48,663	13	17.2%	10
Washington Univ.	9	43,011	12	18.8%	11
Duke Univ.	10	39,910	11	19.7%	11
Cornell Univ	3	66,347	18	14.5%	11
Case Western Res.	13	28,002	9	21.2%	11
Brandeis Univ.	22	17,481	3	28.0%	13
Southern Methodist	20	19,307	5	26.1%	13
Brown Univ.	17	22,605	8	22.1%	13
Johns Hopkins	8	44,892	17	14.7%	13
Pennsylvania U. of	6	53,642	19	14.0%	13
Carnegie Mellon	21	18,134	6	24.6%	14
Northwestern Univ.	11	38,663	16	15.5%	14
Vanderbilt Univ.	16	22,662	14	16.6%	15
Miami Univ. of	15	25,017	22	12.8%	19
Georgetown Univ.	18	21,887	20	13.8%	19
Rochester Univ. of	19	21,130	24	11.9%	22
Emory Univ.	23	16,153	23	12.4%	23
Tufts Univ.	25	14,893	21	13.5%	23
Boston Univ.	24	15,935	26	6.4%	25
Syracuse Univ.	26	11,235	25	7.6%	26

Improvement

	Ave Tot Supt		Supt. Lever.		
Institution	Rank	% Incr	Rank	% Incr	Rank
Princeton Univ.	2	23.7%	4	8.0%	3
Syracuse Univ.	5	20.0%	2	12.0%	4
Carnegie Mellon	1	35.9%	7	6.6%	4
Rochester Univ. of	4	20.0%	5	8.0%	5
Columbia Univ.	3	23.0%	8	5.5%	6
Boston Univ.	6	19.9%	6	7.0%	6
Chicago Univ. of	12	12.8%	1	20.5%	7
Tulane Univ.	11	15.4%	3	11.1%	7
Tufts Univ.	7	19.1%	12	3.0%	10
Emory Univ.	8	18.4%	11	3.5%	10
Cornell Univ	9	18.0%	13	0.8%	11
Miami Univ. of	16	9.2%	9	5.4%	13
Stanford Univ.	10	15.7%	15	-1.0%	13
Duke Univ.	13	11.6%	14	0.2%	14
Brown Univ.	17	8.2%	16	-2.4%	17
Pennsylvania U. of	14	10.9%	19	-2.8%	17
Southern Methodist	24	3.0%	10	3.8%	17
Yale Univ.	19	7.1%	18	-2.7%	19
Brandeis Univ.	15	10.5%	22	-5.4%	19
Northwestern Univ.	21	6.8%	17	-2.6%	19
Vanderbilt Univ.	20	7.0%	20	-4.6%	20
Georgetown Univ.	18	7.7%	25	-8.5%	22
Washington Univ.	23	5.2%	21	-5.1%	22
Johns Hopkins	22	6.5%	24	-7.8%	23
Case Western Res.	25	1.2%	23	-5.4%	24
Dartmouth Coll.	26	-2.2%	26	-12.3%	26

Table : IMPROVEMENT IN TOTAL ALUMNI SUPPORT AND ALUMNI SUPPORT PER ALUMNI OF RECORD, 1976-1985 and 1981-1985

Institution	Ave. Annual % Incr. in Alumni Support 76-85	81-85
Boston Univ.	47.7%	265.2%
Carnegie Mellon	24.5%	41.3%
Johns Hopkins	6.9%	27.0%
Princeton Univ.	27.0%	22.7%
Rochester Univ. of	-15.4%	19.5%
Syracuse Univ.	8.4%	18.8%
Emory Univ.	13.4%	18.7%
Stanford Univ.	10.0%	18.1%
Duke Univ.	20.1%	16.4%
Tulane Univ.	48.4%	14.2%
Southern Methodist	9.3%	14.2%
Columbia Univ.	23.0%	13.2%
Pennsylvania U. of	6.2%	11.8%
Miami Univ. of	7.9%	9.3%
Brown Univ.	24.3%	9.2%
Northwestern Univ.	19.7%	8.3%
Vanderbilt Univ.	9.0%	7.2%
Chicago Univ. of	5.8%	6.4%
Cornell Univ	9.0%	5.4%
Brandeis Univ.	16.2%	4.9%
Georgetown Univ.	48.4%	4.7%
Tufts Univ.	28.0%	1.4%
Dartmouth Coll.	6.4%	-2.6%
Yale Univ.	6.8%	-4.0%
Washington Univ.	27.8%	-11.3%
Case Western Res.	-0.6%	-15.5%
CPI	9.4%	7.0%
GNP	8.1%	7.5%

Institution	Ave. Annual % Incr in Al Supt per Alu 76-85	81-85
Boston Univ.	54.7%	91.9%
Carnegie Mellon	32.0%	45.6%
Johns Hopkins	5.8%	23.4%
Syracuse Univ.	10.8%	21.1%
Princeton Univ.	22.0%	20.9%
Rochester Univ. of	-21.0%	16.0%
Stanford Univ.	7.5%	15.9%
Miami Univ. of	5.3%	14.5%
Emory Univ.	8.6%	12.4%
Chicago Univ. of	7.1%	12.2%
Brown Univ.	18.4%	10.4%
Duke Univ.	12.7%	9.8%
Southern Methodist	5.6%	9.5%
Columbia Univ.	15.1%	7.9%
Pennsylvania U. of	4.4%	7.5%
Georgetown Univ.	67.4%	5.5%
Tulane Univ.	23.6%	5.0%
Northwestern Univ.	17.1%	2.1%
Cornell Univ	-0.4%	0.2%
Brandeis Univ.	7.1%	0.0%
Tufts Univ.	19.5%	-1.9%
Yale Univ.	5.9%	-2.9%
Dartmouth Coll.	4.7%	-4.6%
Vanderbilt Univ.	1.5%	-9.9%
Washington Univ.	22.0%	-12.2%
Case Western Res.	-2.1%	-17.4%

GIFTS FROM INDIVIDUALS, AND DEPENDENCE ON LARGE GIFTS: A COMPARISON OF FOURTEEN PRIVATE UNIVERSITIES, 1983-84 AND 1984-85

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ABSTRACT

A study of gifts from individuals and of large gifts from all sources at fourteen selective private universities for 1983-84 and 1984-85 reveals wide differences in the patterns of achievement. Caution is urged because of possible non-comparability of the data.

Gifts from alumni/ae represented a mean of 30% of grand total support for these institutions; Brown, Carnegie Mellon and Dartmouth received over 50% of their total support from alumni/ae in 1985. Parents gave to their children's institutions in surprisingly large numbers, but their support amounted at best to 3-4% of total private giving. Gifts from non-alumni individuals came from a large number of donors and accounted on average for 18% of total giving, with a high at Rochester of 31%.

Gifts $5000 or more from all sources constituted 50% or more of total support in the two-year period for four of the fourteen institutions. Very large gifts were of great importance: twelve gifts -- the top three each from individuals, estates, corporations and foundations -- brought in an average of 24% of total giving, and approximately 50% or more for Carnegie Mellon and Tulane.

Several suggestions for further research are given.

PURPOSE AND METHODOLOGY

a. General

This study forms part of a series of comparative reviews of fund-raising performance at selective private institutions. The fourteen universities included in this specific study (listed below) are involved in a formal comparison of fund-raising proceeds, costs and staffing, supported in part by the Exxon Education Foundation. The authors express their appreciation for that support.

Brown University	BR
Carnegie-Mellon University	CM
Case Western Reserve University	CW
Cornell University	CU
Dartmouth College	DC
Duke University	DU
Georgetown University	GU
Northwestern University	NU
University of Pennsylvania	UP
University of Rochester	UR
Syracuse University	SU
Tufts University	TU
Tulane University	TL
Vanderbilt University	VU

While these institutions share many characteristics (e.g., substantial research programs, a dedication to graduate and professional as well as undergraduate education), they differ markedly on such basic measures as enrollment, endowments, operating budgets, and number of alumni/ae. They also differ in the longevity, intensity and sophistication of their fund-raising efforts. The basic institutional data for these institutions are not repeated in this paper; they can be found in *Total Private Support and Alumni/ae Giving: A Comparison of Twenty-Six Private Universities, 1976 to 1985*, dated September 1986, by the same authors.

Data for this study came from the 1983-84 and 1984-85 responses by these institutions to the annual survey of the Council on Financial Aid to Education (CFAE). Copies of the completed questionnaires were mailed directly to the authors. Although CFAE requested these data, they did not include them in their publication, *Voluntary Support of Education*. No independent efforts were made to check the accuracy or consistency of these institutionally supplied data. It should be noted that the CFAE surveys have only recently begun to ask for these data. The newness of the questions, and major changes from one year to the next in the data reported by these institutions, suggest that there may well be substantial inconsistencies in the data: they should be used with caution.

It should be noted that the CFAE survey records only the fund-raising proceeds actually received during the year, not pledges.

Data calculations, sorts and graphics were carried out using Symphony (Lotus Development Corp., 1985) and FreeLance (Graphic Communications, Inc., 1985) on a Zenith microcomputer with a Hewlett Packard plotter.

b. Gifts from individuals

With respect to alumni/ae, parents, students, faculty, and other individuals, the CFAE survey asks for the number of donors and the total dollars given. Not enough institutions in the sample group responded to the questions on students and faculty for analyses to be meaningful. We therefore aggregated the responses in three groups: alumni/ae, parents, and all other individuals.

In the earlier paper on Total Private Support and Alumni/ae Giving we examined the share of total support represented by alumni/ae gifts. Here we concentrate on the several ratios:

- the proportion of alumni/ae who give, defined as alumni/ae donors for all purposes divided by alumni/ae of record;
- alumni/ae giving on a per capita basis, measured by dividing total support from alumni/ae by the alumni/ae of record; and
- average alumni/ae gift size, calculated by dividing total support from alumni/ae by the number of alumni/ae donors.

For the other groups -- parents, and all other -- we are interested in the dollars given, the breadth of support as measured by number of donors, and the importance of the group as measured by the proportion of grand total support their gifts represent.

c. Large Gifts

The CFAE survey asks two questions about large gifts: what were the number of gifts from all sources over $5000, and the dollars they represent?; and what were the dollar values of the top three gifts each from living individuals, estate settlements, corporations, and foundations? Since the "bottom line" in fund-raising is the dollars received, we first looked at the magnitude of large-gift support, as indicated by the total dollars these gifts represented. For the gifts over $5000, we also examined the **breadth of support**, measured by the number of such gifts. Finally, for both sets of data, we were interested in the institution's **relative dependence** on large gifts, calculated as the percentage of its grand total support that these gifts represented. To even out the irregularities caused by receipt of a few large gifts, we ranked the institutions' performance on the basis of the average of their ranks for FY 1984 and FY 1985.

FINDINGS

a. Alumni/ae giving.

The institutions receiving most support from their alumni/ae in the 1983-84 and 1984-85 period were Cornell, Dartmouth, Brown, Pennsylvania, Northwestern and Tulane, in that order. The means for the group were $9,200,000 and $11,100,000 for the two years. Dartmouth and Brown were more heavily dependent on alumni/ae support than the others: Dartmouth's alumni/ae giving represented 55% of its total support for these years, and Brown's, 49%. For the group as a whole, the proportion of total support coming from alumni/ae was 29%. (Table 1.)

Since alumni/ae populations differ, it is important to look at alumni/ae giving per alumnus/a of record. Dartmouth ranked first in both years, with average gifts of $331 and $511: Brown was second in 1984 with $236 and third in 1985 with $244; Carnegie Mellon jumped to second in 1985 with a per capita gift of $365. Means for the group were $121 and $152. (Table 2.)

On average, 21-22% of the alumni/ae of these institutions gave for either capital or operating purposes or both during these years. Dartmouth led the group, with 56% giving in 1985; Brown ranked second with 45% in 1984 and 40% in 1985. None of the others came close to this level of support; the next highest was Tufts at 33%. (Table 2.)

The average gift size from alumni/ae (total alumni/ae support divided by alumni/ae donors) varied widely between years for some institutions, probably reflecting the receipt of a small number of large gifts. (Note that there may also be some differences in reporting from year to year and institution to institution.) Carnegie Mellon and Tulane each reported

Table 1: SUPPORT FROM ALUMNI/AE - BASE DATA

	1983/1984				1984/1985			
Institution	Total Support From Alumni/ae	Alumni/ae of Record	Alumni/ae Donors For All Purposes	Percent of Grand Total Support	Total Support From Alumni/ae	Alumni/ae of Record	Alumni/ae Donors For All Purposes	Percent of Grand Total Support
Brown Univ.	12,087,060	51,249	22,856	46%	12,214,142	50,048	20,122	52%
Carnegie Mellon	3,979,026	44,190	10,276	18%	16,125,094	44,190	10,613	55%
Case Western Res.	6,487,496	80,868	21,653	25%	6,582,450	80,101	18,367	21%
Cornell Univ	24,477,302	182,961	NA	34%	25,956,402	186,784	NA	28%
Dartmouth Coll.	13,566,147	40,962	NA	48%	23,982,557	46,942	26,409	60%
Duke Univ.	5,787,372	73,620	21,016	14%	7,077,998	74,047	22,492	13%
Georgetown Univ.	6,923,727	61,427	15,806	31%	4,740,910	63,992	15,440	18%
Northwestern Univ.	9,191,964	183,848	31,337	25%	13,112,747	189,032	31,047	28%
Pennsylvania U. of	11,831,785	188,148	54,101	20%	11,215,829	183,012	57,834	17%
Rochester Univ. of	7,401,995	56,399	16,575	29%	4,277,209	58,180	16,120	16%
Syracuse Univ.	4,765,851	120,994	25,126	42%	5,544,810	122,712	24,046	33%
Tufts Univ.	4,330,304	57,404	19,040	28%	4,830,230	60,118	18,980	23%
Tulane Univ.	11,183,300	63,596	10,748	30%	10,327,342	67,219	NA	38%
Vanderbilt Univ.	7,424,190	73,859	18,480	32%	9,498,776	73,678	19,611	35%
MAXIMUM	24,477,302	188,148	54,101	48%	25,956,402	189,032	57,834	60%
MEAN	9,245,537	91,395	19,072	29%	11,106,178	92,883	20,077	29%
MINIMUM	3,979,026	40,962	0	14%	4,277,209	41,190	0	13%

Table 2: SUPPORT FROM ALUMNI/AE - PERFORMANCE

	1983/1984							1984/1985							
	Alumni Donors divided by Alum of Record		Alumni Support divided by Alum of Record		Alumni Support divided by Alumni Donors		Ave. Rank FY84	Alumni Donors divided by Alum of Record		Alumni Support divided by Alum of Record		Alumni Support divided by Alumni Donors		Ave. Rank FY84	Average Rank FY84 & FY85
Institution	Pct	Rank	$	Rank	$	Rank		Pct	Rank	$	Rank	$	Rank		
Dartmouth Coll.			331	1			1	56%	1	511	1	908	2	1	1
Brown Univ.	45%	1	236	2	529	2	2	40%	2	244	3	607	3	3	2
Tulane Univ.	17%	9	176	3	1,041	1	4			154	4			4	4
Cornell Univ			134	4			4			139	5			5	5
Carnegie Mellon	23%	7	90	8	387	6	7	24%	7	365	2	1,519	1	3	5
Vanderbilt Univ.	25%	6	101	7	402	5	6	27%	6	129	6	484	4	5	6
Rochester Univ. of	29%	3	131	5	447	3	4	28%	5	73	11	265	9	8	6
Duke Univ.	29%	3	79	10	275	9	7	30%	4	96	7	315	7	6	7
Georgetown Univ.	26%	5	113	6	438	4	5	24%	7	74	10	307	8	8	7
Case Western Res.	27%	4	80	9	300	7	7	23%	8	82	8	358	6	7	7
Tufts Univ.	33%	2	75	11	227	10	8	32%	3	80	9	254	10	7	8
Pennsylvania U. of	29%	3	63	12	219	11	9	32%	3	61	13	194	12	9	9
Northwestern Univ.	17%	9	50	13	293	8	10	16%	10	69	12	422	5	9	10
Syracuse Univ.	21%	8	39	14	190	12	11	20%	9	45	14	231	11	11	11
MAXIMUM	45%		331		1,041			56%		511		1,519			
MEAN	21%		121		396			22%		152		489			
MINIMUM	17%		39		190			16%		45		194			

very high average gifts in specific years, Tulane a value of $1041 in 1984 and CMU $1519 in 1985. Dartmouth's average gift of $908 in 1985, and Brown's averages of $529 and $607 are probably more stable leaders. Means for the group were $396 in 1984 and $489 in 1985. (Table 2.)

From these various indicators, Dartmouth and Brown seem to have done best on alumni/ae giving.

b. Giving by parents

Duke, Tulane and Tufts do best among the eleven reporting institutions on support from parents, with Duke and Tulane bringing in over $1,000,000 in each of the two years, and Tufts averaging about $800,000. Means for the eleven institutions were $410,000 and $467,000 in 1984 and 1985. (Table 3.)

The breadth of parent support was surprising, considering the amounts parents pay for tuitions and fees at these institutions. Georgetown, Syracuse, Duke, Pennsylvania, Tufts and Vanderbilt all received over 1500 parental gifts in 1985. (Table 3.)

Parental support played the biggest proportionate role at Tufts, Tulane, and Duke, representing over 4%, over 3% and over 2.3% of grand total support respectively. (Table 3.)

c. Giving by students, faculty, and other individuals

Cornell achieved by far the highest level of giving by non-alumni individuals in 1984 and 1985, with Penn and Northwestern in second and third place. (Note that it is probable that Cornell included parents among "other individuals" instead of reporting them separately, thus making their extraordinary performance in this category a bit more understandable.) The mean gifts from non-alumni were $5,800,000 in 1984 and $6,900,000 in 1985. (Table 4.)

As with parental support, the breadth of giving by non-alumni individuals was surprising. On average, these institutions reported 3,200 gifts from non-alumni in 1984 and 4,300 in 1985. The maxima were 8,900 by Vanderbilt in 1984 and 11,300 by Penn in 1985. (Table 4.)

Cornell, Penn and Northwestern were the institutions most dependent on non-alumni giving. Cornell, for example, received 30%+ of its total

Table 3: SUPPORT FROM PARENTS

	1983/1984							1984/1985							
	Total Parent Support		Number of Parent Donors		Parent Supt. As % of Total Supt.		Ave. Rank FY84	Total Parent Support		Number of Parent Donors		Parent Supt. As % of Total Supt.		Ave. Rank FY34	Average Rank FY84 & FY85
Institution	$	Rank	Qty	Rank	%	Rank		$	Rank	Qty	Rank	%	Rank		
Tufts Univ.	701,976	5	1,612	5	4.5%	2	4	908,743	5	1,773	7	4.3%	3	5	5
Duke Univ.	1,049,753	4	1,343	6	2.6%	5	5	1,248,858	3	1,811	5	2.3%	5	4	5
Tulane Univ.	1,083,852	3	659	11	2.9%	4	6	967,760	4	1,382	9	3.5%	4	6	6
Syracuse Univ.	220,719	9	2,035	2	1.9%	6	6	245,223	9	2,004	3	1.5%	7	6	6
Georgetown Univ.	325,614	8	1,012	8	1.5%	8	8	597,709	6	2,025	2	2.2%	6	5	6
Vanderbilt Univ.	419,419	6	1,721	3	1.8%	7	5	350,775	8	1,538	8	1.3%	8	8	7
Pennsylvania U. of	359,203	7	1,278	7	0.6%	9	8	489,990	7	1,806	6	0.7%	9	7	8
Northwestern Univ.	205,409	10	881	10	0.6%	9	10	170,705	10	591	10	0.4%	10	10	10
Rochester Univ. of	47,910	12	991	9	0.2%	11	11	51,608	12	573	11	0.2%	11	11	11
Carnegie Mellon	69,407	11	417	12	0.3%	10	11	62,552	11	476	12	0.2%	11	11	11
Case Western Res.	31,935	13	363	13	0.1%	12	13	29,664	13	365	13	0.1%	12	13	13
MAXIMUM	1,083,852		2,035		4.5%			1,248,858		2,025		4.3%			
MEAN	410,472		1,119		1.3%			465,781		1,304		1.2%			
MINIMUM	31,935		363		0.1%			29,664		365		0.1%			

Table 4: SUPPORT FROM STUDENTS, FACULTY AND OTHER INDIVIDUALS

	1983/1984							1984/1985							
Institution	Total Support Other Indivs.		Number of Other Donors		Total Supt. Other Indv. As % of Grand Tot Supt.		Ave. Rank FY84	Total Support Other Indivs.		Number of Other Donors		Total Supt. Other Indv. As % of Grand Tot Supt.		Ave. Rank FY84	Average Rank FY84 & FY85
	$	Rank	Qty	Rank	%	Rank		$	Rank	Qty	Rank	%	Rank		
Cornell Univ	22,625,941	1		1	31%	1	1	26,953,232	1		1	29%	2	1	1
Pennsylvania U. of	14,355,587	2	4,372	4	24%	2	3	11,600,147	3	11,345	1	18%	5	3	3
Northwestern Univ.	7,142,536	3	3,586	6	20%	3	4	12,291,421	2	3,463	8	26%	3	4	4
Duke Univ.	5,941,140	4	7,839	2	15%	7	4	7,655,524	5	7,806	2	14%	7	5	5
Rochester Univ. of	4,829,585	5	519	12	19%	4	7	8,416,407	4	5,582	4	31%	1	3	5
Vanderbilt Univ.	3,602,577	8	8,932	1	15%	7	5	4,083,682	8	7,781	3	15%	6	6	6
Georgetown Univ.	3,507,185	9	5,084	3	16%	6	6	5,732,823	6	4,071	7	21%	4	6	6
Dartmouth Coll.	3,934,589	7	3,696	5	14%	8	7	5,195,002	7	4,376	6	13%	8	7	7
Case Western Res.	4,474,302	6	836	10	17%	5	7	3,200,032	10	1,940	9	10%	10	10	8
Tufts Univ.	2,324,013	12	2,081	8	15%	7	9	2,110,426	12	1,862	10	10%	10	11	10
Syracuse Univ.	878,239	14	2,697	7	8%	10	10	1,665,164	13	5,100	5	10%	10	9	10
Brown Univ.	3,269,307	10	1.321	9	12%	9	9	2,463,371	11	1,285	11	10%	10	11	10
Tulane Univ.	3,158,853	11	595	11	8%	10	11	3,393,929	9	982	12	12%	10	10	11
Carnegie Mellon	1,815,710	13	350	13	8%	10	12	1,221,928	14	412	13	4%	11	13	12
MAXIMUM	22,625,941		8,932		31%			26,953,232		11,345		31%			
MEAN	5,847,112		3,224		18%			6,855,935		4,308		18%			
MINIMUM	878,239		350		8%			1,221,928		412		4%			

support from non-alumni individuals in both 1984 and 1985, whereas the mean for the group was 18%. (Table 4.)

d. Gifts over $5000, from all sources.

The analysis of gifts over $5000 is of interest since such fairly substantial gifts often account for a large share of an institution's total fund-raising receipts. The $5000 cutoff point is low enough, however, that many institutions can develop a sizeable pool of donors at that level.

Cornell, Northwestern, Tulane, and Dartmouth led the group in depth of large-gift support, attracting the largest dollar amounts raised in gifts of over $5000. Cornell, ranking third with $29,000,000 in 1984, jumped to first with $45,000,000 in 1985. The means for the group were $12,900,000 in 1984 and $13,100,000 in 1985. (Table 5.)

All fourteen universities received substantial numbers of gifts over $5000 in both years. Those with the broadest stable bases of high-level support include Cornell and Dartmouth, which averaged about 980 and 550 such gifts respectively for the two years. Other institutions achieving high numbers of $5000+ gifts in 1983-84 or 1984-85 included Northwestern and Case Western Reserve. (Note: the variances from one year to the next may be real, but may also reflect differences of interpretation.) The means for the group were 357 gifts over $5000 in 1984 and 317 in 1985. (Table 5.)

Brown, Dartmouth, Tulane, and Northwestern all showed up as being highly dependent on gifts over $5000, receiving about 50% or more of their total support for the two-year period in this form. In contrast, Duke, Case Western Reserve, Carnegie Mellon, and Rochester all received 25% or less of their support in these big gifts. The means for the fourteen universities were 41% in 1984 and 35% in 1985. (Table 5.)

(e) Top three gifts from living individuals, estate settlements, corporations and foundations.

The analysis of these twelve top gifts indicates both the amounts they represent, and the extent to which the institution is dependent on this very narrow segment of the donor population.

TABLE 5: GIFTS OVER $5,000

	1983/1984						1984/1985						FY 1984 and FY 1985 Combined Ranks		
	Gifts $5000+		Dollars Given $5000+ Gifts		Pct of Grand Tot. Supt.		Gifts $5000+		Dollars Given $5000+ Gifts		Pct of Grand Tot. Supt.				
Institution	Number	Rank	Dollars	Rank	%	Rank	Number	Rank	Dollars	Rank	%	Rank	Number Gifts	Dollars	Pct.
Cornell Univ	772	2	29,259,779	3	40%	4	1,191	1	45,054,452	1	49%	3	2	2	4
Northwestern Univ.	763	3	31,339,537	2	87%	2	319	4	21,197,780	3	46%	4	4	3	3
Tulane Univ.	353	6	35,231,041	1	93%	1	191	8	12,413,265	5	45%	5	7	3	3
Dartmouth Coll.	485	4	11,319,043	6	40%	4	613	2	22,685,137	2	57%	1	3	4	3
Pennsylvania U. of	367	5	18,020,360	4	30%	8							3	4	4
Brown Univ.	293	7	13,257,820	5	51%	3	364	3	12,548,790	4	53%	2	5	5	3
Vanderbilt Univ.	237	8	7,612,047	8	32%	6	278	5	9,923,790	6	36%	6	7	7	6
Georgetown Univ.	236	9	7,798,925	7	35%	5	194	7	7,586,832	9	28%	7	8	8	6
Duke Univ.	229	10	6,653,899	10	17%	12	254	6	8,047,348	8	15%	12	8	9	12
Case Western Res.	863	1	7,050,255	9	27%	10	129	12	5,807,981	11	19%	11	7	10	11
Rochester Univ. of	32	14	1,025,296	14	4%	13	187	9	9,753,224	7	36%	6	12	11	10
Carnegie Mellon	108	13	4,695,994	11	22%	11	113	13	6,026,190	10	21%	10	13	11	11
Tufts Univ.	138	11	4,347,659	12	28%	9	158	10	5,666,560	12	27%	8	11	12	9
Syracuse Univ.	117	12	3,495,973	13	31%	7	130	11	4,187,534	13	25%	9	12	13	8
MAXIMUM	863		35,231,041		93%		1,191		45,054,452		57%				
MEAN	357		12,936,259		41%		317		13,146,068		35%				
MINIMUM	32		1,025,296		4%		113		4,187,534		15%				

Carnegie Mellon, Cornell and Tulane clearly led the fourteen institutions in the number of dollars represented by these top twelve gifts, raising $30,000,000 or more from these gifts in the two years. For six of the fourteen institutions -- Rochester, Duke, Georgetown, Vanderbilt, Tufts, and Syracuse -- these gifts were only about a third as high, bringing in only $12,000,000 or less in the two-year period. Means for the group were $7,600,000 in 1984 and $9,000,000 in 1985, a total of $16-17,000,000. (Table 6.)

Of the three top performers, both Carnegie Mellon and Tulane showed up as highly dependent on these top gifts: for Carnegie Mellon, they represented over 59% of total dollars received, in both years; for Tulane, an average of 48%. Cornell's campaign was so much broader that these top gifts did not represent as large a segment of their overall proceeds.

The importance of these gifts should not be underestimated, even for the universities that did not receive as many dollars. For Syracuse, Tufts, Vanderbilt, Georgetown, and Rochester, for example, these top twelve gifts represented 20% or more of their entire proceeds each year. (Table 6.)

An analysis by source of the twelve top gifts will indicate some very different patterns among these fourteen institutions. Carnegie Mellon, for instance, received $10,500,000 in the these two years from corporations, well above any of the other universities. Cornell, Case Western Reserve, Tulane, Rochester and Vanderbilt seem to have received most from estate settlements. Tulane (with $11,700,000 in 1984 alone), Cornell and Case Western Reserve seem to outdo the rest in foundation support. (Table 6.)

FURTHER RESEARCH

It would be important, given some questions about the comparability and consistency of the data on which this analysis is based, to continue the research for the next several years, trying each year to obtain cleaner and more useful information.

TABLE 6: VALUE OF THREE LARGEST GIFTS EACH FROM LIVING INDIVIDUALS, ESTATE SETTLEMENTS, FOUNDATIONS, AND CORPORATIONS

	1983-84									1984-85									1983-84 & 1984-85 Combined Ranks	
		Top Three Gifts Each From				12 Gifts		Rank			Top Three Gifts Each From				12 Gifts		Rank			
Institution	Grand Total Support	Living Indiv	Estate Settle	Fdn.	Corp	Total $	% of Tot Supt.	Tot. $	% of Supt	Grand Total Support	Living Indiv	Estate Settle	Found	Corp	Total $	% of Tot Supt.	Tot. $	% of Supt	Tot. $	% of Supt
Carnegie Mellon	21,705	1,750	1,165	2,472	6,194	11,581	53%	2	2	29,221	12,466	595	1,422	4,491	18,974	65%	1	1	2	2
Cornell Univ	72,819	3,010	3,845	2,802	1,266	10,923	15%	3	10	91,859	6,550	5,149	3,998	2,910	18,607	20%	2	11	3	11
Tulane Univ.	37,794	1,620	5,545	11,697	2,798	21,661	57%	1	1	27,307	3,292	1,284	1,234	4,165	9,974	37%	5	2	3	2
Case Western Res.	25,751	742	1,940	2,021	1,352	6,056	24%	8	6	31,281	699	4,416	3,376	1,905	10,395	33%	4	3	6	5
Brown Univ.	26,240	3,437	1,361	1,262	2,277	8,336	32%	5	4	23,571	2,619	2,290	1,171	467	6,547	28%	7	5	6	5
Northwestern Univ.	36,069	1,368	2,848	1,533	386	6,135	17%	7	8	46,476	4,869	1,981	1,784	1,175	9,809	21%	6	10	7	9
Dartmouth Coll.	28,019	773	952	1,562	1,367	4,653	17%	10	8	39,948	7,500	1,969	1,769	1,126	12,363	31%	3	4	7	6
Pennsylvania U. of	60,036	1,175	2,714	3,020	2,817	9,726	16%	4	9	65,945	954	859	1,389	2,034	5,235	8%	13	13	9	11
Rochester Univ. of	25,790	301	4,352	875	918	6,447	25%	6	5	27,374	1,250	1,961	986	1,236	5,433	20%	12	11	9	8
Duke Univ.	39,931	650	1,704	2,315	825	5,494	14%	9	12	53,584	737	629	1,485	3,371	6,222	12%	9	12	9	12
Georgetown Univ.	22,396	2,260	857	650	825	4,591	20%	11	7	27,010	1,901	1,059	2,455	847	6,263	23%	8	8	10	8
Vanderbilt Univ.	23,497	561	2,178	940	430	4,110	17%	13	8	27,515	836	4,033	710	449	6,028	22%	10	9	12	9
Tufts Univ.	15,470	958	797	722	648	3,125	20%	14	7	21,049	1,077	1,305	1,635	1,595	5,612	27%	11	6	13	7
Syracuse Univ.	11,400	1,375	350	1,000	1,507	4,232	37%	12	3	16,884	1,525	345	515	1,680	4,064	24%	14	7	13	5
MAXIMUM	72,819	3,437	5,545	11,697	6,194	21,661	57%			91,859	12,466	5,149	3,998	4,491	18,974	65%				
MEAN	31,923	1,427	2,186	2,348	1,686	7,648	20%			37,787	3,305	1,991	1,709	1,961	8,966	24%				
MINIMUM	11,400	301	350	650	386	3,125	14%			16,884	699	345	515	419	4,064	8%				

Further research in this area should include analyses of trustee giving as well as the student and faculty support. Useful work here will only be possible if definitions are clear and good data can be collected.

Finally, in this paper we measured the extent of dependence each institution had on the various sources or levels of giving, calculating what percentage each represented of grand total support. A different approach would be to judge the contribution of each source or level to the institution, measuring those gifts in relation to E&G budgets or on a per FTE student basis.

A somewhat longer version of this report, with graphics, is available from the authors.

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1986
NORTH EAST ASSOCIATION OF INSTITUTIONAL RESEARCH THIRTEENTH ANNUAL MEETING

CONFERENCE PROGRAM

SUNDAY, OCTOBER 26TH

President's Brunch: 11:00 AM - 12:30 PM
Steering Committee, conference workers and workshop presenters

Session 1 - Workshops: 12:30 PM - 3:50 PM

"ADDS III Demonstration of Distributed Decision Support Systems" by Robert Glover, Michael Mills, Timothy Stevens, University of Hartford

"Designing Effective Questionnaires" by Linda Suskie, Millersville University

"Newcomers to Institutional Research" by Robert E. Grose, Amherst College and William Lauroesch, University of Massachusetts - Amherst

"Strategic Planning" by Greg Lozier, Pennsylvania State University

Session 2 - Workshares: 4:00 PM - 5:30 PM

"Admissions/Enrollment Research"
Conveners: Dawn Geronimo Terkla and Susan Wright, Tufts University

"Factbooks and Management Information"
Convener: Paige V. Ireland, Cornell University

"Starting a Factbook"
Convener: Allan J. Sturtz, South Central Connecticut Community College

"College Board Admissions Testing Program (ATP) Services"
Conveners: Frank Williams, College Board and William Weitzer, University of Massachusetts - Amherst

Social Hour: 5:30 PM - 6:30 PM

Banquet Dinner and Keynote Address: 6:30 PM - 8:30 PM
Speaker: Helen O'Bannon, Sr. Vice President, University of Pennsylvania

Social Evening: 8:30 PM - 11:00 PM

MONDAY, OCTOBER 27TH

Annual NEAIR Fun Run: 7:00 AM - 8:00 AM

Coffee and Danish: 7:30 AM - 8:30 AM

Special Interest Groups: 7:30 AM - 8:30 AM

SUNY AIRPO
Convener: Jill Campbell, SUNY at Brockport

IVY LEAGUE IR
Convener: Judith Dozier Hackman, Yale University

Session 3A - IR Theory/Practice: 8:30 AM - 10:00 AM

"Institutional Researcher's Role as Collaborator" by D. Green, J. Morlock, J. Edwards, T. Moran, SUNY at Plattsburgh

"Changing Role in the 80's of Institutional Research" by Frances Edwards, Mercer County Community College

Session 3B - Student Assessment: 8:30 AM - 10:00 AM

"Course Placement and Academic Success" by Jocelyn Clark and Alice Drum, Franklin & Marshall College

"Predicting Academic Success for Men and Women at M.I.T." by Elizabeth S. Johnson, Massachusetts Institute of Technology

"Students' Personal Development over the First Two Years of College" by Thomas M. Wright, SUNY Albany and Patrick T. Terenzini, University of Georgia

Session 3C - Enrollment: 8:30 AM - 10:00 AM

"THE STAR SYSTEM: Admissions Database on a Microcomputer" by Jill Campbell and Louis Spiro, SUNY at Brockport

"Strategic Planning Model for Enrollment Management" by Anthony Lolli, University of Rochester

Session 3D - Planning: 8:30 AM - 10:00 AM

"Planning: Strategic and Operational How They Fit" by Janyce Napora, University of Massachusetts

"Role of Institutional Research in University Advancement Activity" by Michael Middaugh, University of Delaware

MONDAY, OCTOBER 27TH, Continued

"What Should an Institution Spend on Plant Renovation?" by John Dunn, Tufts University and Burton Sonenstein, Wellesley College

Session 4A - Information Management: 10:15 AM - 11:45 AM

"Information Management and the Institutional Researcher: The Case of Course and Room Scheduling" by Wendy Graham, College of Human Ecology, Cornell University

"Decision Support Systems for Micros: The Macintosh and Excel" by Walter Mullen, Yale University

"Information Management: Dealing with Imperfect Systems" by Laurie Webster-Saft, SUNY Albany and Mark Eckstein, SUNY Binghamton

Session 4B - Student Assessment: 10:15 AM - 11:45 AM

"The Impact of Academic Standards on Student Subgroups" by Jane Grosset, Community College of Philadelphia

"An Integrated Longitudinal Approach to the Study of Student Outcomes" by Robert Karp, North Country Community College

"Educational Research at a National Level: Two Pilot Studies" by Frank Paoni, Brookdale Community College

"Entering Student Cohort Studies" by Frances Edwards and Holly Staatse, Mercer County Community College

Session 4C - Faculty: 10:15 AM - 11:45 AM

"Systematic Allocation of Faculty Positions" by Kenneth Stewart and Thomas Edwards, Frostburg State College

"Decision Support for Contract Negotiation" by James Spear and Thomas Wickenden, Tompkins Cortland Community College

"Using Multiple Regression to Illuminate Faculty Salary Comparisons" by Dale Trusheim, University of Delaware

"Computer Modeling and Contract Negotiations: Formula for Distributing Inequity Funds" by Frank Wunschel and Pamela Roelfs, University of Connecticut

MONDAY, OCTOBER 27TH Continued

Session 4D - Planning: 10:15 AM - 11:45 AM

SPECIAL SYMPOSIUM - "State Regulation and Campus Autonomy"
Presenter: J. Fredericks Volkwein, SUNY at Albany
Commentators: Mark Sullivan, Southern Connecticut State University and Jennifer Presley, University of Massachusetts - Boston

Luncheon and Special Plenary Session: 12:00 - 1:45 PM

PANEL DEBATE: "Should Institutional Researchers Serve as the Information Managers for their Institutions?"
Moderator: Judith Dozier Hackman, Yale University
Panelists: Edward L. Delaney, Southern Connecticut State University and Charles McClintock, Cornell University

Session 5A - IR Theory/Practice: 2:00 PM - 3:00 PM

"Organizational Context and Educational Policy Analysis" by Thomas Moran, SUNY Plattsburgh

Session 5B - Student Assessment: 2:00 PM - 3:00 PM

"Student Indebtedness: A Survey of State University Graduates" by Jennifer Brown, Connecticut State University

"Life After Graduation: Trends in Post-College Activities" by Rena Cheskis-Gold and Beverly Waters, Yale University

"Post-Baccalaureate Plans of the Classes of 1984, 1985, and 1986" by Dawn Geronimo Terkla, Tufts University

Session 5C - Enrollment: 2:00 PM - 3:00 PM

"Attracting Low-Income Students to a High Priced College" by Leah Johnson Smith, Swarthmore College

"Gender Difference in Attrition of Natural Science Majors" by Richard Lovely, Yale University and John Jay College, CUNY

"Factors Related to Acceptance to Medical School" by Jocelyn Clark, Franklin and Marshall College

Session 5D - Planning: 2:00 PM - 3:00 PM

"Marketing Strategic Planning" by Frank Milligan and G. Jeremiah Ryan, Monroe Community College

Session 6A - IR Theory/Practice: 3:15 PM - 4:15 PM

"Don't Let Your Reports Die on the Shelf" by Rodney Lane, Southern Connecticut State University

Session 6B - Student Assessment: 3:15 PM - 4:15 PM

"Providing for the Needs of Handicapped Student" by William Welsh and Gerard Walter, Rochester Institute of Technology

"Self-Evaluation of a Student Service Program" by James Richards, Nassau Community College

"Student Attrition: Reasons Why at Brookdale Community College" by Martin Murray and Robert Banacki, Brookdale Community College

Session 6C - Enrollment: 3:15 PM - 4:15 PM

"Influence of Student Satisfaction on Persistence" by Diana Green and Jean Morlock, SUNY at Plattsburgh

"Estimating Student Flow with Limited Data" by David Rumpf, Northeastern University and Stephen Coelen, University of Massachusetts

Session 6D - IPEDS: 3:15 PM - 4:15 PM

"Integrated Postsecondary Education Data System" by Martin Frankel, U. S. Department of Education

SIG PENN IR: 3:15 PM - 4:15 PM

"Pennsylvania Institutional Researchers"
Convener: Gregory Lozier, Penn State University

ANNUAL BUSINESS MEETING: 4:30 PM - 5:30 PM

Special Event Dinner, Tour and Entertainment: 5:45 PM

TUESDAY, OCTOBER 28TH

Coffee and Danish: 7:30 AM

Session 7A - IR Theory/Practice: 8:30 AM - 10:00 AM

"Demonstration of the Higher Education Media Scan (HEMS) Reference System" by Jeffrey Dutton, SUNY at Buffalo and Kathleen Bissonnette, West Virginia University

"DSS for Planning and Resource Allocation" by Robert Glover, University of Hartford

Session 7B - Workshop Enrollment Planning: 8:30 AM - 10:00 AM

"Enrollment Management Using the Enrollment Planning Service (EPS)" by Susan Shaman, University of Pennsylvania

Session 7C - Workshop IR Newcomers: 8:30 AM - 10:00 AM

Convener: Robert Gross, Amherst College

Session 7D - Development Panel: 8:30 AM - 10:00 AM

"How Come They're Doing Better Than We Are?: Comparative Studies in Fund-Raising Achievement"
Moderator: John A. Dunn, Tufts University
Panelists: Deirdre A. Ling, University of Massachusetts at Amherst, Thomas McNamee, Hartwick College, and G. Jeremiah Ryan, Monroe Community College

Session 8A - Workshare Alumni Surveys: 10:15 AM - 11:45 AM

"Alumni/Post-Graduate Activities Surveys"
Convener: Nancy A. Neville, Rochester Institute of Technology

Session 8B - Workshare EPS: 10:15 AM - 11:45 AM

"Enrollment Planning System (EPS): Advanced Applications"
Convener: Susan Shaman, University of Pennsylvania

Session 8C - Workshare Computers: 10:15 AM - 11:45 AM

"Computer Configurations for Institutional Research Offices"
Convener: Richard C. Heck, Colgate University

Session 8D - Development: 10:15 AM - 11:45 AM

"Sure It Takes Money to Raise Money, But How Much?: The Economics of Fundraising" by John A. Dunn, Tufts, G. Jeffrey Paton, University of Rochester, and Richard Edwards, CASE

TUESDAY, OCTOBER 28TH, Continued

Post-Conference Meeting

Special Interest Group HEDS: 12:15 PM - 1:45 PM

"The Higher Education Data Sharing (HEDS) Project"
Convener: John A. Dunn, Jr., Tufts University